IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF IOWA
WESTERN DIVISION

RONALD KUIPER and CONLEY KUIPER,	No. C06-4009-MWB
Plaintiffs,	Sioux City, Iowa February 23, 2009
vs.	8:08 a.m.
GIVAUDAN FLAVORS CORP.,	VOLUME 5 OF 12
Defendant.	

TRANSCRIPT OF TRIAL
BEFORE THE HONORABLE MARK W. BENNETT
UNITED STATES DISTRICT JUDGE, and a jury.

APPEARANCES:

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(Proceedings reconvened outside the presence of the jury.)

THE COURT: Is there anything we need to take up before we start at 8:30, Mr. McClain?

MR. MCCLAIN: Not from our side.

THE COURT: On the defense, anything?

MR. PAGLIARO: Nothing from our side.

THE COURT: Okay. Thank you. We'll see you back at 8:30.

MR. MCCLAIN: I just would like the Court to be aware that I'm taking credit for this weather.

THE COURT: Especially tomorrow when it hits 50?

MR. MCCLAIN: I'm really taking credit for that.

THE COURT: Okay. That's good.

MR. MEADOR: Your Honor, by the way, great restaurant recommendations. We all went to Archie's on Saturday, both sides.

THE COURT: Oh, both sides. Oh, great. Yeah, it's good, isn't it? Yeah, it's been on NPR a couple times.

MR. PAGLIARO: It's excellent.

MR. MEADOR: How do they sell those California wines so cheap? I can't buy them for that price in California.

THE COURT: No, I don't get it. I know -- I do know this, that the owner Bob has great connections, and I think he trades them beef for wine, and -- but he -- you can't buy it as

cheap as he sells it so -- yeah, I don't know how he does it, but it's a pretty interesting place.

MR. MCCLAIN: Judge, there is one issue I forgot about. Mr. Kuiper's only going to be able to testify for about 15 minutes at a time. Now, his whole direct is not an hour, but it might be good to get him started today so I can get him all wrapped up. If we can do 15 or 20 minutes at some point during the day, if we've got a spot where we can do that and then excuse him and let him come back to finish his direct, but he just cannot go for very long. I was going to meet with him last night, and he was just too tired even to do that. So it just is a matter of stamina in terms of testifying for a long period of time.

THE COURT: And how many segments do you think it will take to complete his direct?

MR. MCCLAIN: Two or three.

THE COURT: Defense have any problem with that?

MR. PAGLIARO: Absolutely not, Your Honor, not a problem.

THE COURT: Okay. And would you want -- well, I guess we'll just wait till he's finally done before you cross-examine him.

MR. PAGLIARO: I think that would be best, Your Honor, and I have no problem.

THE COURT: Great. I appreciate that. Thank you.

Okay. Anything else? I'm going to leave the room before you think of something else. Thank you.

MR. MCCLAIN: That would be smart.

(Recess at 8:11 a.m.)

THE COURT: Are we -- how much more of the videotaped deposition is there?

MR. MCCLAIN: There's two hours, but we're going to interrupt that to call our first live witness who's here from out of town and then complete the playing of the videotaped deposition if that's acceptable to the Court.

THE COURT: Any problem with that?

MR. PAGLIARO: No, Your Honor.

THE COURT: Okay. Are you going to call the live person first?

MR. MCCLAIN: We are.

THE COURT: Okay. You going to explain to the jury you're interrupting the depo?

MR. MCCLAIN: Yes, Your Honor. I'm going to ask for permission.

THE COURT: Thanks.

(The jury entered the courtroom.)

THE COURT: Good morning. Please be seated.

Mr. McClain, can you give us a heads-up as to what's going to be happening here?

MR. MCCLAIN: Yes, Your Honor. With permission, we

would like to interrupt the videotaped deposition of Dr. Higley --

THE COURT: Sorry about that.

MR. MCCLAIN: That's okay.

THE COURT: Just getting some sunlight in.

MR. MCCLAIN: I understand. It's supposedly going to be a nice day. We would like to interrupt the videotaped deposition because we have a live witness who's here -- and to try to complete him during the day is a priority -- and then complete Dr. Higley after that would be our preference if that's acceptable to the Court.

THE COURT: It is. And the defense has no objection.

MR. PAGLIARO: No objection, Your Honor.

THE COURT: Okay. Thank you.

MR. MCCLAIN: Then with that, Your Honor, I would call Dr. Alan Parmet.

ALAN PARMET, PLAINTIFFS' WITNESS, SWORN

THE COURT: Thank you. Please be seated in the witness box. You can adjust the chair and the microphones so you can speak directly into them. And when you're ready, would you tell us your full name, please.

THE WITNESS: Alan Jeffrey Parmet.

THE COURT: And can you spell your last name, please.

THE WITNESS: P-a-r-m-e-t.

THE COURT: Thank you.

Mr. McClain?

MR. MCCLAIN: Thank you, Your Honor.

Good morning, ladies and gentlemen.

DIRECT EXAMINATION

BY MR. MCCLAIN:

Q. Dr. Parmet, welcome. Would you introduce yourself to the jury, please.

A. Good morning.

Q. Tell them who you are and what you do and where you're from, those kind of things.

A. I'm a physician. I practice what's called occupational medicine in Kansas City, Missouri.

Q. And, Dr. Parmet, we've heard about an Alan Parmet who was the doctor that discovered the outbreak of bronchiolitis obliterans in the Jasper, Missouri, microwave popcorn plant. Are you that Dr. Parmet?

A. Yes.

Q. Would you give us a brief overview of your credentials, please, Dr. Parmet, what you did as an undergraduate, your medical school and training beyond.

A. Certainly. I went to the United States Air Force Academy, major, bachelor of science, chemical engineering. I served in the Air Force and then went back to medical school, went to the University of Kansas and graduated 1976.

I then went back to the Air Force and did specialty

training, eventually completing my specialty training in occupational medicine and aerospace medicine. I went to the University of Texas School of Public Health where I received my master's degree in public health in 1981 and completed the specialty training in 1982. And then I did a fellowship in space medicine at NASA at Johnson Space Center. I then practiced in the Air Force until I retired from the Air Force in 1992 after a little over 24 years. And I went home to Kansas City where I'm originally from. I've been practicing there ever since. I also used my GI Bill to go back to the University of Kansas and start didactic training. I've completed my course work for a Ph.D. in toxicology.

Q. And so, Dr. Parmet, do you have a -- then a medical degree?

A. I do.

Q. And you have completed all the course work for a Ph.D. in toxicology.

A. That's correct.

Q. Are you board certified in any disciplines?

A. Yes, I am.

Q. What are you board certified in?

A. I am board certified in the medical specialties of occupational medicine and in aerospace medicine. They're both -- some people call them subspecialties, but they're part of preventive medicine. We deal with prevention and treatment of disease primarily focusing on prevention and how to deal with

that in populations rather than individual patients one at a time which is what most physicians do.

Q. What is it -- Doctor, you're trained in toxicology. What is toxicology?

A. Toxicology -- well, it's sort of the dark side of pharmacology. We deal with the adverse effects of chemicals, and we have a saying the dose makes the poison. You can take any chemical that might be beneficial and too much can become a poison. You can make oxygen poisonous if you make it high-enough amounts. Aspirin is a great drug, but too much can kill you. So toxicology is the study of the effects of chemicals and what they're -- the problems they can cause.

Q. And, Doctor, during your training in occupational medicine, were you also trained in what's called epidemiology?

A. Epidemiology is a core portion of what we do. It's the statistical study of populations. We look at large groups of people, look at the statistical causes and incidents of disease and how that disease occurs, what puts people at risk for disease, what you can do to intervene in that process to prevent disease from occurring.

Q. Doctor, are you -- is your work with occupational medicine tied up in the concept of preventive medicine?

A. Yes, that's our core feature.

Q. Doctor, you've relayed to me a story about this that I think is helpful to understand the nature of preventive medicine

about Dr. Snow in London. Could you relate that to the jury in terms of the basis of why you do what you do?

A. Sure. It's an important story because it underpins what we do. Sorry.

Back in the 1840s there was an epidemic of a disease called cholera. Now, we know cholera now is a bacterial disease that's spread by contaminated water, but in 1840 nobody knew that. There was an epidemic, an outbreak in the city of London, and people were dying. There's no way to treat cholera that -- I'm sorry. I gotta get myself together here.

There were a lot of theories as to what caused cholera: Bad air, poor people got it. Nobody really knew. Dr. Snow was practicing in London, and he began to study the statistics. He studied where people lived, what their water supply was. We didn't have piped-in water in those days. They had wells that were supplied, and you'd go out to the well and pump it out yourself in a small area of town. And there were privies all over the town. There was no sewage.

So Dr. Snow found that one pump. If you got your water from that pump, you were going to get cholera. He went and -- excuse me. He went down to the pump, and he took the handle off. He didn't cure anybody. But he stopped the epidemic. A very simple story, and it's something that all of us in preventive medicine want to do.

Q. Now, Doctor, it's -- obviously that's a moving story to

you. Is that one of the things that motivates you, trying to prevent people from getting disease? Is that why you do this?

A. That's what I do. That's what I want to do.

Q. Now, let's talk, Doctor, in regard to the Jasper popcorn workers and your discovery of that disease.

MR. MCCLAIN: Scott, would you put up what the jury's already seen, Exhibit 1044?

Q. Doctor, this is an article -- you can see it on your screen in front of you. I don't know whether it's too small on that screen, but that's an article you're very familiar with?

A. Yes.

Q. And in the acknowledgment section of the paper, it says --

MR. MCCLAIN: Yeah, would you bring that up, Scott?

Q. It says, "We are indebted," and then it goes on, and then it says, "to Dr. Alan Parmet who brought the index cases to the attention of public health officials."

Doctor, will you give us the background about how it came about that you became involved and how you brought to the attention of public health officials this outbreak of bronchiolitis obliterans and related diseases at the Jasper microwave popcorn plant?

A. Sure.

MR. MCCLAIN: And I'm sorry. Did I read -- I didn't read the number, did I?

MR. PAGLIARO: You did, sir.

MR. MCCLAIN: I did. 1044.
BY MR. MCCLAIN:
Q. Go ahead.
A. In the spring of 2000, an attorney asked me if I'd look at a bunch of medical records.
Q. Was that attorney me?
A. No, no. It was a Mr. Green. He came up from the Ozarks, and the reason he was involved as I recall was his uncle was one of the patients. And I sort of have a reputation. I'll look at all sorts of odd things and strange -- strange cases.

So he just brought in a great big box of medical records from nine people, and all nine people worked at this little microwave popcorn plant down in Jasper, Missouri. It's a little town less than 2,000 people, just a bit north of Joplin.

So I sat down with the records, and, I mean, it took me 15 minutes and I was going, holy smokes, we've got an epidemic of bronchiolitis obliterans.
Q. Why -- why, Doctor, did you say, "Holy smokes, we've got an epidemic"? What's unique about that?
A. Well, first of all, I'll tell you what an epidemic is. Like I said, I do epidemiology, the study of epidemics. It's really a statistic. It's looking at why there is more disease in one area than another. You have an epidemic when the number of cases of a specific kind of disease suddenly jumps up.

So bronchiolitis obliterans, first of all, is a very

rare disease. Prior to this, I had only seen three cases in my whole life. The -- what we call the incidence, the number of new cases in a population, is about anywhere from 1 in 30,000 to 1 in 100,000 depending on what sort of studies you see.

Q. Stop for a minute. One in thirty thousand, one in a hundred thousand. And if in Sioux City we have something under 100,000 people, you would expect only one case in this entire city?

A. You would expect one to three cases per year in a city of this size. And yet I was looking at 9 cases from a town of 2,000 people. I did not have to really crank the numbers very hard to say statistically this is way, way, way above what we should ever see.

So that's the way we define epidemics. So I immediately knew I had an epidemic. And these people had been to all sorts of great medical institutions. Some had been to Washington University in St. Louis, the University of Kansas, Mayo Clinic, National Jewish in Denver. No two people had the same diagnosis. Several of them had multiple di -- nobody had a group. Nobody really looked at the group. Everybody was seeing individual physicians and being treated individually.

As occupational docs, preventive docs, we look at groups of people to look at these patterns, and this pattern was just obvious to me, and it was so obvious and it was clearly what to me is a risk to the public that I simply called the

Missouri State Department of Health and said, "I think I have an epidemic here."

Q. And is the Missouri Department of Health like the Iowa Department of Health, generally the agency within the state that looks at these issues if you have an occupational disease outbreak somewhere?

A. They will do that, although like most states, they're very small and very limited in what they could do. But -- in fact, they count on volunteers, so I've been volunteering with the state health department for years in doing surveillance because they simply didn't have enough people. So they knew me and they knew I was sort of a trusted pair of eyes. So they said, "If you think it's there, then, you know, it's there." They pass that information along to Centers For Disease Control and Prevention in Atlanta. And in the summer of 2000, Dr. Gomaa from -- actually from the National Institutes For Occupational Safety and Health --

Q. NIOSH?

A. NIOSH. That's a branch of CDC -- came to my office along with Dr. Kullman from the state, and they sat at my table, and they looked at the same records, and it took them just as long as it did me. Anybody in our profession could look at this, and it was obvious what we had, an epidemic from one small place.

Q. And so that's -- you know, that's the analogy to what Dr. Snow found. It was an epidemic from a small place that you

were trying to prevent other people from being injured.
A. That's correct.
Q. And so what happened next? What was the sequence of events that allowed this first article to be published on the issue?
A. Well, what you have to do is detective work. And the original -- in fact, the original detective stories were written by a physician for very good reason. Conan Doyle writing Sherlock Holmes, he was a physician, knew how to do this detective work. We go into a facility. We plan what we're going to look for. We're going to look at the geography of the plant. We're going to look at the time. Were all these diseases happening at a certain time of year, or were they a certain portion of the plant? We're going to look at the chemicals and the process that's going on. I was sort of familiar with popcorn personally because my brother-in-law raises it out in Nebraska so . . .
Q. And so, Doctor, did you have a theory when you went into this that you thought you knew what was causing this disease of bronchiolitis obliterans in this group of workers?
A. Yeah, I had a brilliant theory, yeah. First thing I reckoned was that we had gotten some mold on the popcorn, and that mold -- some of these molds are known to cause this, so it was a brilliant theory, and it's easy to test. You look at the area where the corn comes in and where people were exposed to corn and corn dust, and that was part of the geography of the

plant. We could tell there was an area, a separate building, warehouse, corn came in, brilliant theory, and it went -- shot down real quick.

Q. Why? Why did it get shot down?

A. Well, the facts didn't support it for a second because the people who worked in the warehouse and dealt with the raw corn, the first thing they did was inspect the corn. And you don't want moldy corn going into your popcorn, so that got thrown out. They were the only ones who got exposed to the popcorn that was raw and potentially any mold, yet they were the healthiest of all the people. When you went through the plant and tested everybody, the people who worked in the warehouse had the best lung functions and the fewest pulmonary problems.

Q. So the people exposed to corn dust were the healthiest in the workers at Jasper, not vice versa.

A. That's correct. They got corn dust. They got salt over there. But they had the best performance, so that was a brilliant idea that didn't stand up to the test.

Q. So when corn dust was ruled out, what was -- what began to appear in the detective work as possibilities?

A. There were other investigators, and NIOSH brought their whole team in. They had people doing sampling of the air quality in the building. We started to sort people out. There were people who worked on production lines who simply packaged the boxes of popcorn. There were people who worked up on what

was called a little mezzanine. It was an area just above the big open room, and they mixed the salt, the corn, the oil, the flavoring. They had the highest number of complaints and the worst lung functions. That was the focus, the epicenter of the disease right up there.

Q. So using our example again, they were like the people that lived closest to the well.

A. Correct.

Q. So that kind of narrowed in on something around what the mixers were doing was the -- was a prime candidate.

A. That's correct. So there's another thing to test here, and they began sampling what was going on in the plant. They sampled dust and salt and what are called volatiles, chemicals that are released when you mix up the popcorn by adding the oil and the flavoring.

Q. Now, Doctor, just --

MR. MCCLAIN: Scott, will you bring up the number of coauthors on the study up at the top?

Q. Doctor, there are one, two, three, four, five, six coauthors on the study. Were all these people actually physically involved in doing this work?

A. They were involved, although Dr. Gomaa and Kullman were actually at the plant. The rest were -- like Ed Simoes there actually was our director of the state public health department at the time. The others were back at NIOSH in West Virginia.

Q. And were there technicians also involved in this study that were investigating it, taking these air samples I guess they were?
A. Correct. We had people doing air samples. Other technicians were doing breathing samples on all the employees and any ex-employee who came in to be tested.
Q. Okay. So this was quite a team that was doing this investigation. It wasn't just a couple people sitting around a table theorizing.
A. That's correct. I helped sit around and do the theoretical planning, but the actual footwork was done by the team from NIOSH.
Q. Okay. So after they focused -- began focusing on the mixing room, what did they do?
A. They sampled what was in the air since we were dealing with a pulmonary problem. They interviewed and sampled all the employees who were willing to participate which was a great majority of them. And they tested the employees. They were looking for how their breathing was, particularly were paying attention to smoking because we know in pulmonary disease smoking is a major cause. We call that a confounder. We want to keep the confounders out so that we don't mistake smoking for causing an occupational disease or miss it for the same reason.
Q. And then what?
A. The samples came back and suggested that the highest

disease was also associated with the highest levels of the volatiles, particularly the flavoring, and the biggest chemical in the flavoring was one called diacetyl.

Q. And, Doctor, at the point in time when diacetyl was identified, did you know very much about diacetyl?

A. I knew very, very little. In fact, it's -- in my actual toxicology books, it's not even -- was not listed at that time as being dangerous. I had to go back to my chemistry books. There's basically a dictionary of all chemicals, and I'd looked that one up, and it was not listed as being dangerous.

Q. Okay. And, Doctor, do you -- that was the -- you say that was the most predominant chemical in the air that was being breathed by these mixers. Is that how that was begun to be focused on?

A. It was certainly the most important. The largest of any of the single chemicals that were used to make butter flavoring was diacetyl. There are others mixed in.

Q. Okay. So what was the next step in trying to track this down and make an association between what was causing the disease and what was in the air being breathed?

A. Well, parts of the team were running the statistics and correlating the amounts of the chemical with disease, with symptoms, and trying to put all the statistical analysis together. Another member, a Dr. Hubbs, took some samples of the butter flavoring back to NIOSH in West Virginia and actually did

some laboratory tests.
Q. Dr. Hubbs you say?
A. Yes.
Q. And what did Dr. Hubbs find?
A. She was a veterinarian, and she actually tested some laboratory rats by exposing them to the butter flavoring. And after short exposures, the rats became quite ill.
Q. Okay. And, Doctor, would you --
MR. MCCLAIN: Scott, would you skip down to the conclusion section on the first page?
Q. Now, this is September of 2002. The excess rates of lung disease and lung function abnormalities and the relation between exposures and outcomes in this working population indicate they probably had occupational bronchiolitis obliterans caused by the inhalation of volatile butter-flavoring ingredients. Was that the conclusion of the study reached?
A. Yes, it was.
Q. And the predominant characteristic of the butter flavor was diacetyl?
A. That's correct.
Q. And that was proven by the -- by not only epidemiology but also laboratory tests on the laboratory rats?
A. That's correct.
Q. Why is that an important step, Doctor, and why was that particularly helpful in nailing this down?

A. We want to be able to reproduce the results in a model, and you don't want to use humans as the model, although we have a natural experiment which is what we call this epidemic, a disease in people, but you don't experiment on people intentionally.

So taking the chemicals, exposing a test animal, and seeing if you can get similar results knowing that test animals are not exactly like people, but you want to see if you can reproduce that, and indeed the results strongly support that the butter flavoring was the cause.

Q. Now, Doctor, I want to ask you about something. Do you know Dr. Kreiss, Kathleen Kreiss?

A. Yes.

Q. Is she now the acting director of NIOSH?

A. She is.

Q. She is. And she was the lead author on this paper?

A. That's correct.

Q. And, Doctor, she wrote a paper in 2007 called Occupational Bronchiolitis Obliterans, Masquerading as COPD. Are you familiar with that article?

A. Yes.

Q. I want to go to that article and just ask you about a statement in it, see if you can explain it.

MR. MCCLAIN: Would you go to page 2 of the article? That's Exhibit 1235.

MR. PAGLIARO: Thank you. Appreciate it.

MR. MCCLAIN: Second page, Scott. It's in the second column beginning at the top with consistency.

BY MR. MCCLAIN:

Q. Doctor, Dr. Egilman talked to us about the so-called Hill factors or considerations. And he talked about consistency of association. She says here consistency of the association exists in studies of workers in microwave popcorn, flavoring, and diacetyl manufacture. What does that mean, Doctor?

A. Well, he mentioned the Hill criteria which is a series of scientific values we use to assess chemicals for their danger causing disease. And consistency means that the results in human populations regardless of what their exposure is and animal studies, everything matches up. There's nothing where one group of people is exposed to this chemical and they don't get sick but another group of people, they get exposed and they do. That would be inconsistent.

Q. So they say that microwave popcorn workers, people working in the flavoring industry, and also diacetyl manufacture have all gotten sick from this chemical?

A. That's correct.

Q. Now that we've studied it. This is an article in 2007.

A. That's correct.

Q. But back when you were looking at it for the first time in 2000 or thereabouts, had these studies been done?

A. No, nothing had been published at this point.
Q. The temporal requirement for the exposure to precede the health outcome was met for incident cases in the sentinel microwave popcorn plant. Was that the Jasper plant?
A. That's correct.
Q. And control of exposures resulted in lowering of the risk. An exposure-response relation exists, what does that mean?
A. It's another way of saying that a dose response -- if you're not exposed, you don't get sick. If you're exposed, you have a risk of getting sick, and not every person gets sick exactly the same way at exactly the same amount of exposure. Everybody's a little bit different.
Q. Now, Doctor, there's a chart in the studies that --
MR. MCCLAIN: Scott, if you could go back to that last exhibit, Exhibit 1044, to this chart, please, on that point.
Q. Doctor, this chart, you're familiar with this chart?
A. Yes.
MR. MCCLAIN: Your Honor, could he step down just for a moment to show the jury what he's talking about in terms of what -- the article called An Exposure-Response Relationship?
THE COURT: Yes, but I think he'll need to use the microphone.
MR. MCCLAIN: Okay. I will get him one.
THE COURT: Gene, why don't we just use -- is it going to be pretty short?

MR. MCCLAIN: Yes, very short.
THE COURT: Yeah, why don't we just use one of the handhelds.
MR. MCCLAIN: That'd be great. Thank you.
THE COURT: Thank you, Gene.
THE WITNESS: I should not sing here; right?
A. All right. This is a chart that was done at the Jasper plant breaking out the people who worked in the facility by what are called core tiles. The highest core tile, 25 percent of the people who got exposure versus people who had the lowest exposure. So the lowest exposure -- this is a laser, it's not -- I'm sorry. Let me just point. The lowest exposure is in this first core tile right over here, and that actually were the people who were working in the warehouse, a separate building. They had the lowest exposure. And their pulmonary function's higher. The bigger the bar, the better. Their pulmonary functions are normal.
Q. Let me trade you because we're having --
A. Thank you. Thank you. So they're normal. Here's the hundredth percentile. A pulmonary function -- this is a group, everybody in the group working, people who are continuing to work. Their average pulmonary functions are very close to the hundredth percentile which is the normal point. If I took a group of everybody off the street who'd never smoked, the average should be a hundred percent.

Q. So that first group, that would be the people out there working with the corn dust you talked to us about.
A. That's correct.
Q. Okay.
A. And this also had some of the people who worked in the office which was another separate area. In the highest exposure, you had people who were working as mixers and right around the mixing area and producing it. They had the highest exposure to diacetyl, and their pulmonary functions were the lowest. There's a way of statistically analyzing this to see if the differences in these various curves are significant or not because it might just have occurred by accident. But when we did a statistical analysis, it is significant. It really -- the chances of that being an accident are less than 1 in 5,000. So this is -- this is a very significant finding that the higher the exposure, the lower your lungs, the worse your pulmonary functions were, the more symptoms you had, and that's a direct exposure, dose-response relationship.
Q. Now -- okay, Doctor. You can take your seat again.
MR. MCCLAIN: Scott, would you go back to the article, please?
Q. So, Doctor, when they -- that's what they're talking about when they say an exposure-response relation exists.
A. That's correct.
Q. And then it says biologic plausibility exists in

experimental rodent toxicology studies. Was that what you were telling us about, this Dr. Hubbs who did the experiments on rats?

A. That's correct. And that's another one of these Hill criteria points that you have to create a theory that is biologically plausible. You can't just say something is out of the blue. And here we have an actual exposure, and we've reproduced pulmonary or at least respiratory symptoms in test animals when they're given an exposure to what the workers were exposed to.

Q. See, as an example, Doctor, if -- let's say that the people were being exposed to sugar as opposed to diacetyl and we had this -- we were seeing some kind of relationship between the amount of sugar they were being exposed to and this disease but we tested it on animals and there was no response. That would be something that would be a negative factor in terms of an association.

A. That's correct. So there you've lost the biologic plausibility for sugar causing the disease, and you've lost another one of the Hill criteria points.

Q. So this was kind of another arrow in your quiver. You had this dose-response relationship that you could see in people. You had consistency of results, everybody that was exposed, but then you had the additional factor that you could demonstrate it in laboratory animals.

A. That's correct.
Q. And is that something, Doctor, that's -- having all these things line up that way, is that very strong evidence of a cause and effect relationship?
A. That's correct. We want everything to line up and point the same direction.
Q. Okay. It says, "Thus, the collective evidence for diacetyl causing a respiratory hazard supports action to minimize exposures to diacetyl even if contributions by other chemicals, flavoring chemicals, exist."
Doctor, was that your view?
A. Yes, it is.
Q. That's part of your focus as a preventive medicine doctor.
A. Yes.
Q. Now, Doctor, have you seen workers since that time who have been exposed to diacetyl either in microwave popcorn work or as workers in flavoring plants or in other types of exposures?
A. Yes, sir.
Q. Candy plants?
A. Yes, I have.
Q. And, Doctor, what states? Is it all confined to Iowa and Missouri or where?
A. I've seen people from -- besides Missouri and Iowa, Nebraska, Montana, Washington, Michigan, Maryland, Ohio, Kentucky, Indiana, and Illinois.

Q. Now, Doctor, in fairness, a lot of those cases, my law office has asked you to look at them; is that right?
A. That's correct.
Q. But, Doctor, tell the jury, in cases that you're asked to look at, that is, people that have worked around this who have respiratory symptoms, do you always find an association?
A. No, I don't.
Q. In the cases that you've looked at, what fraction have you found an association between their disease and their symptoms?
A. Overall I'd say about maybe one-third of the people who your firm sent me I was able to confirm that they actually had some sort of lung disease due to exposure to diacetyl and butter flavoring. The others, no.
Q. Okay. So -- and you said in Ohio, Indiana, Iowa, Illinois, Kentucky, Missouri, and Nebraska you've seen this in plants where diacetyl has been found.
A. That's correct.
Q. Now, Doctor, in terms of this diagnosis, though, is it an easy diagnosis to make?
A. No, it's quite difficult.
Q. And you mentioned the fact that back in the early days even sending these people to Mayo Clinic and National Jewish, when they were just seeing one person, even those highly qualified doctors had a very difficult time with what they were looking at.

A. That's correct.
Q. And it wasn't until someone, you, got them all together could you really see what was going on.
A. I was able to stand back from the single patient and look at the pattern, and that's what all the occupational docs are trained to do. So the other doctors saw it too.
Q. And now the rest of the medical community's come around, and everyone agrees that's what they're looking at. But that was kind of a difficult situation?
A. It was.
MR. PAGLIARO: Objection to the form of the question.
THE COURT: Sustained.
BY MR. MCCLAIN:
Q. Doctor, is that frequently the way that discoveries are made in the medical community, that is, one person -- one person sees it and then the rest of the medical community comes around if, in fact, it's a true association?
A. Well, it won't be one person, but it will be repeated scientific observations that confirm. You may have one person making the original theory, but it has to be confirmed by other people reenforcing that. And when I initially found this, the state of Missouri came in to look at what I was doing. NIOSH came in, and then Dr. Von Essen here in Lincoln, Nebraska, brought in a case at the same time. So there we had people beginning to reconfirm and saying yes, we all see the same

pattern. And unless we know how to recognize that pattern, we'll miss things. I did that myself back in the 1970s before I was actually trained to see patterns.

Q. And tell the jury about that, would you?

A. Well, my particular story here is in the late 1970s I was stationed at an Air Force training base in Texas. And I was seeing young recruits who were getting extremely sick. We would give them a routine vaccination, and they would get extremely ill, and some of them died just from a routine vaccination. And we were just -- we were very puzzled. I couldn't figure it out. I had infectious disease specialists look at it. We did not know what was going on.

We finally stopped doing the vaccinations because we didn't know what was going on, but we were hurting more people than we were helping. And it wasn't until two years later that Centers For Disease Control published their study on AIDS. And what we were seeing were people with AIDS.

Q. But you didn't -- there was not a unified diagnosis, and so you were calling it something else.

A. I didn't know what I was seeing. I just didn't know that the people I were seeing were getting sick (sic).

Q. Now, Doctor, there's a classic cartoon, 2191. What is this cartoon trying to depict, Doctor? What is it?

A. Well, you know, it's a classic story of the blind men describing an elephant. Each one sees their part of the picture

and describes it, but nobody gets the whole picture.

MR. PAGLIARO: Your Honor, I assume this is a demonstrative.

MR. MCCLAIN: It is. It is a demonstrative.

THE COURT: Thank you. It is.

BY MR. MCCLAIN:

Q. And what is it demonstrative of, Doctor, then?

A. Well, if you go back and look to all the patients that I was initially viewing, if an allergist saw them, they saw an allergy. If a pulmonary doctor saw them, they saw a pulmonary problem. A dermatologist would see a dermatology problem. Nobody saw the whole picture, and they weren't thinking of the entire group of people working in the same place, just the individual patient. And, you know, sometimes we doctors get a little overspecialized and we're just dealing with our little part and not looking at the whole person.

Q. Doctor, in the scientific literature, has this phenomenon regarding these microwave popcorn workers been commented on about how many doctors missed the diagnosis initially?

A. That's correct.

Q. Let me refer you to Exhibit 969, Bronchiolitis Obliterans Syndrome in Popcorn Production Workers by Akpinar-Elci. You familiar with this article?

A. Yes.

Q. And this too is from the group of NIOSH investigators?

A. That's correct.
Q. Doctor, I want to go over to the -- just before the discussion and see, Doctor, if you agree with this statement.
MR. MCCLAIN: Back, Scott. It was the statement that begins "none." Yes. None of the nine cases --
Q. Now, is this -- when they're talking about the nine cases, are they talking about the original Jasper popcorn workers that you saw?
A. Yeah, these -- I actually gave all my records on those nine patients to Dr. Akpinar-Elci and said it looked like bronchiolitis obliterans to me, but I only took 15 minutes to look at them, and yet every person had been very thoroughly worked up by very capable physicians.
Q. With differing diagnoses?
A. Every one of them had a different diagnosis.
Q. Okay. None of the nine cases received an initial diagnosis of bronchiolitis obliterans syndrome. Diagnosis of pneumonia, asthma, emphysema, bronchitis, chronic obstructive pulmonary disease, hay favor, and sinusitis were common. All cases were prescribed oral corticosteroids with showing improvement in airway obstruction. Two received -- how do you say that?
A. Cyclophosphamide.
Q. -- cyclophosphamide treatment and reported symptomatic improvement, but no pulmonary function improvement was evident. So, Doctor, is that the situation that you came on at the time,

that doctors were having a hard time recognizing it?
A. That's correct.
Q. And is that still true today?
A. I think so. It's getting better as we're educating physicians as to -- you have to think about where people work and what they do. Don't just focus on what their complaint is today.
Q. Because, Doctor, is it the situation that most doctors even today are not seeing a big group of people? They're seeing one or two patients that they're looking at when looking at these popcorn workers?
A. That's correct. Very rarely will a doctor see more than -- if the patient's coming, they're picking their own doctor, and you see one or two maybe. You're not going to see a group. I was lucky. I got to see a group of nine, and the pattern was immediately obvious. But that's not the case in clinical practice.
Q. Now, Doctor, you kind of -- you know, one of the things that you said in terms of what you're able to do now in terms of seeing these patterns is now that you know what you're looking for, the pattern is evident when it's there; is that right?
A. That's correct.
Q. Now, you told me that it's kind of like those Highlight books that I used to see when I'd go to the doctor. That was the only thing I looked forward to is those Highlight books back

when I was a kid. You said it's kind of like that.
A. It is. I still put those in my waiting room. But, you know, the picture where all these little hidden patterns are there, but unless you know what to look for, you won't see them.
Q. I pulled one off the Internet, 2190, Doctor, and is this kind of one of the classic ones?
A. I think they put a new one out every month.
Q. Okay.
A. This is that sort of thing where there are hidden patterns in the picture.
Q. Now, what I pulled out --
MR. MCCLAIN: Scott, maybe we can switch this over. And this is Exhibit 2190, demonstrative only, Your Honor.
Q. Doctor, when you're looking at it and don't know what you're looking for, it's hard to see. But as an example, there's a hat here. And I found that out not because I was very good at this. I just looked at the back page, and they said look for the things here. So I want complete disclosure. But now that I look at the picture, the only thing I can see is the hat. You know, is that a fair -- once you know what's there, it's pretty easy to spot it?
A. It's easy to see it. But if you came from a culture where you didn't know what a cowboy hat looked like, you wouldn't see this. It simply would not register with you.
Q. Okay. All right. Now, Doctor --

MR. MCCLAIN: Would you put the slide then up, Scott, if you could of these varying -- and this is only demonstrative as well, Your Honor. It's a summary slide. I took those categories that were found in the last article. You didn't do that? Can we switch over then to this, put it up here?

Q. Doctor, these things were mentioned in the article. So sometimes do doctors who look at this find pneumonia that you've seen in the medical records?

A. Yes.

Q. And emphysema?

A. Yes.

Q. And COPD?

A. Yes.

Q. And sinusitis?

A. Yes.

Q. And asthma, asthma's frequently diagnosed. Is that fair?

A. That's correct.

Q. Bronchitis?

A. Correct.

Q. And hay fever?

A. Yes.

Q. And, Doctor, in reality, can the disease bronchiolitis obliterans syndrome or popcorn workers' lung be obstructive?

A. Yes.

Q. Can there be a mixed obstructive and restrictive pattern?

A. Yes.
Q. And can it have a restrictive pattern?
A. Yes.
Q. And is that supported in the medical literature, not just Dr. Parmet says it but the other researchers that have focused on this say it too?
A. That's correct.
Q. Now, when you were originally -- when you were originally seeing all this and the doctors from around the country were coming together that had had experience with this, was there a group meeting in West Virginia with NIOSH --
A. Yes.
Q. -- to be able to establish diagnostic criteria and what to label this disease?
A. In the summer of 2001, we all met in West Virginia at NIOSH headquarters.
Q. And what happened?
A. A consensus report was created, and the primary articles were written. Dr. Von Essen and I put out the first paper which was published in 2002, and Dr. Kreiss's team published the big report in the New England Journal of Medicine a little after that.
Q. And so was there a consensus by the medical professionals of what was necessary to diagnose this disease and what it should be called?

A. There was -- I don't think we had a complete consensus at that point. We still don't have a complete consensus of what to call it, and I don't think popcorn lung is a good term for it.
Q. Because workers outside of popcorn -- it's diacetyl lung if it's anything.
A. Cor -- it's -- and that's actually one of the terms that's been applied as diacetyl-induced bronchiolitis obliterans. That's -- my friend Phil Harber at UCLA uses that term. I think it's too narrow a term myself. Bronchiolitis obliterans which is the general category this is in, but it doesn't quite behave like most cases of bronchiolitis obliterans. And so one of the -- our real expert on that, Dr. King --
Q. Talmadge King?
A. Correct.
Q. We heard Dr. Stuart Brooks mention Dr. Talmadge King and reference that when this situation arose in Cincinnati that he contacted Talmadge King. Was Talmadge King at that meeting that you're talking about?
A. Yes, he was.
Q. Okay. And so when you say that this disease does not quite have all the features of classic bronchiolitis obliterans, is that something that hangs doctors up sometimes?
A. It does, and I think one of the strange things we get into is that most cases of bronchiolitis obliterans progress very, very rapidly and fatally. And if you miss it, the patient's

dead in a few months. This doesn't quite behave that way. So from the start we knew we were dealing with something different, and he suggested the term bronchiolitis obliterans syndrome which I adopted, although I think we're going to move to this either diacetyl-induced bronchiolitis obliterans or flavoring-induced bronchiolitis obliterans.

Q. So what you're calling it is evolving, but the disease -- the disease criteria are currently -- there's a consensus around.

A. There's a general consensus over what we need to find, and the number-one thing is find exposure to the butter flavorings.

Q. Okay.

A. If you don't have that, you couldn't have this disease. You have to be exposed to it to get it.

Q. Now -- but I want to back up on this. So if a doctor, say, locally was focused on that you had to find all of the hallmarks of classic bronchiolitis obliterans, is that something that could trip up a local diagnostician?

A. Well, it would trip up anybody because if you were expecting to find absolutely specific criteria or you don't have it, then you almost never get it in any of these.

Q. So all these workers would be tripped up on one factor or another, but this is not classic bronchiolitis obliterans. It's bronchiolitis obliterans syndrome.

A. Correct.

Q. Okay. So it's a wide variety of these symptoms related to exposure to diacetyl; is that fair to say?
A. That's correct. And keep in mind the first cases that I saw were the worst cases with the most severe findings. But the moment that NIOSH went in and began examining the plant, we found the rest of that iceberg. I'd seen the tip of the iceberg sticking up, but, in fact, most of the people didn't have that severe a disease, but a lot of the people who were still working at the plant had many symptoms and had abnormal pulmonary findings. They were the part that was still under water, and that's actually the majority of people.
Q. Now, Doctor, several things have been mentioned in regard to this -- these diagnostic criteria, and I just want to ask you about them. Is it necessary to have a biopsy that shows bronchiolitis obliterans in the tissue to be able to diagnose this?
A. No, no.
Q. And why not?
A. Well, I'll tell you with the original nine, only two of them had biopsies. One of them was biopsied twice, and the first time the biopsy was normal. And what we've since discovered is that the disease may affect one section of the lung but the adjacent section an inch away is virtually normal. It makes it very hard to do a biopsy and because of the stiffness from the scarring, it also makes a biopsy dangerous.

So I'm --
Q. In fact, Doctor, in one of your patients from the Jasper popcorn plant, did he have a precipitous decline after they took a biopsy?
A. He was very ill for a very long time so . . .
Q. So you wouldn't recommend someone that's very ill necessarily have a biopsy just to confirm a diagnosis.
A. That's correct.
Q. Now, Doctor, by the way, is this opinion that you've stated supported by the literature, that is, that others that have studied this disease process, this bronchiolitis obliterans syndrome, that a biopsy is not necessary or particularly helpful?
A. That's correct. Like Dr. Kreiss is actually saying that with her latest publications.
Q. Now, you're familiar with Dr. van Rooy in the Netherlands.
A. Not personally but --
Q. With his article.
A. The publication and the article.
Q. And he studied diacetyl production workers.
A. That's correct. They actually shut down the plant because of this.
Q. They had sick workers at that plant.
A. That's correct.
MR. MCCLAIN: And, Scott, would you go over to page,

oh, 502 of the van Rooy article? First of all, would you go to the first page so that the jury can see it? And that, Mr. Pagliaro, is -- 1234 is the number of that article. And would you go to the second page, Scott, of that 502? I'm sorry. No, 502, Scott. It's the discussion page. Yeah. Right up at the top of the page over in the second column, please.

Q. It says, "Because lesions are often patchy or may present as centrilobular emphysema, the diagnosis may be missed." Is that, Doctor, consistent with your opinion?

A. Yes.

Q. So this is -- in other words, if you take a piece of lung, you might miss it because it doesn't appear throughout the lung. It's in patches.

A. That's correct.

Q. Now, it says it may present. Dr. van Rooy says it may present as centrilobular emphysema. Have you seen that where doctors have diagnosed it as centrilobular emphysema?

A. Yes.

Q. Likewise, you mentioned Dr. Kreiss's article, her most recent article, in 2008 -- or 2009 actually, 2140, Lung Disease in Flavoring and Food Production, Learning From Butter Flavoring. And now, you mentioned Dr. Kreiss is now the head of NIOSH. Just this year she says, "Lung disease in flavoring and food production, learning from butter flavoring." Before we go to the point on taking biopsies, Doctor, has this been an

instance where the medical profession has learned from food flavoring-induced bronchiolitis obliterans?
A. Indeed. Dr. Kreiss has actually used this repeatedly as a teaching point, and she trains lung doctors, pulmonary specialists, that all of the original group were seen by many pulmonary specialists, and every one was missed. And what she's trying to train them to do is think a little more broadly and a little more globally about what people do and their disease so that you begin to keep this association and don't focus so much on just that little problem right now.
Q. Now, Doctor, you know, this is coming out in 2009. Is that because still a lot of doctors out there, you know, haven't seen this enough and don't know what they're looking at that she's trying to train people what the lessons have been from this?
A. Well, the lessons are broader than just popcorn or just flavoring because we may be seeing disease from other sources, and we want to learn to recognize it, to keep the open mind and make those associations, start to think about where this person came from. If it's not an obvious problem and an obvious cause, drop back and think and make your association, look at the global patient. We need to train physicians to recognize these patterns. And it's spreading what we do in preventive medicine more into the clinical doctors who are not really trained to think that way. And we need them to go back to the way they used to be.

Q. Now, Doctor, looking at this article then on this point of biopsy --

MR. MCCLAIN: 178 of the article, Scott, would you go to that page? Yeah. The page I want, Scott, is 178. That does relate, but it's the page before this. Yeah. Would you bring up -- it's in the middle of the paragraph, Scott, the disease is a patchy distribution. Yeah.

Q. The disease is a -- patchy in distribution so that all sections of the lung are not equally affected. And so, Doctor, is that again emphasizing that, you know, you're not going to find it on a biopsy if you take one necessarily?

A. That's correct. It's sort of like if you were to look for a skin cancer by randomly taking a piece of skin except the lung is a whole lot bigger than that. The lung, if you actually opened it up, is about the size of a tennis court. So a random chunk of the lung, you don't have very good odds of just finding what you're looking for.

Q. Now, Doctor, there's been some suggestion that -- you know, that Mr. Kuiper should have discovered this before -- I think we filed the case in January of 2006. Your written report was in I think April of 2006 that's been disclosed. But did you actually review his records at our request before we filed suit?

A. I did. I think it was January of 2006.

Q. And did you render an oral opinion to our office before we filed that your diagnosis was that he had most likely

bronchiolitis obliterans caused by butter flavor?
A. I did. It was probably bronchiolitis obliterans.
Q. And, Doctor, before that time had anyone made that diagnosis based upon the medical records that you reviewed?
A. No, nobody had.
Q. And, Doctor, you know, there's some suggestion that back in 1996 he should have known. Doctor, in 1996, did you even know?
A. I didn't know. Nobody knew.
Q. Okay. Well, we're going to talk about that in a few minutes. I mean, nobody in the medical community knew, but that doesn't mean what companies knew?
MR. PAGLIARO: Objection, Your Honor, to the form of the question.
MR. MCCLAIN: You're right. I'll withdraw it and say it -- and ask another question.
THE COURT: Okay. Thank you.
BY MR. MCCLAIN:
Q. Doctor, when you say that nobody knew, does that mean that companies didn't know?
A. Well, there was certainly nothing in the medical literature, the open literature, that would lead any physician to know or recognize this disease.
Q. Okay. And so -- and is it fair to say then that from your standpoint until your diagnosis was made in 2006 no one had informed Mr. Kuiper that he had this disease to a reasonable

degree of medical certainty?
A. That's correct.
Q. And, Doctor, is it fair to say that up until that time he was being diligent about trying to find out what was wrong with him based upon the medical records?
A. He was. He'd seen a number of doctors, and his doctors had evaluated him carefully and referred him to other doctors and tried to treat him.
Q. Okay. Now, Doctor, you mentioned the fact that in 2002 you wrote a letter to the editor of the journal of the American -- it's JOEM. What was --
A. Journal of Occupational and Environmental Medicine.
Q. Right. Okay. I was going to mess that up. That's Exhibit 968. And in this article, Doctor, did you say that this was a new and unexpected disease that you were finding?
A. It was. And actually you'll notice the title ends with a question mark. And letters to the editor in scientific journals are not like a letter to the newspaper. It's actually a short scientific paper that -- and a technique we use to publish something very quickly without going through a much longer process that may delay the publication 6 to 12 months.
Q. So this was the first published -- in March of 2002 the first published of this possibility. Is that -- is that a fair statement?
A. That's correct. And, again, you know, Dr. Von Essen and I

ended this with a question mark because we weren't absolutely sure this truly was there, and we were waiting for confirmation from other scientists.

Q. This is Exhibit 968, and this is in 2002.

A. That's correct.

Q. And up until 2002, had anyone diagnosed Mr. Kuiper with bronchiolitis obliterans syndrome caused by butter flavor that he worked with?

A. No.

Q. And as far as you know, was there any medical literature to do that?

A. No.

Q. And even from this time in 2002 through January of 2004, how many doctors in the country actually were aware of what was going on?

A. I couldn't tell you exactly.

Q. A very limited number or a large number?

A. Just -- we were just starting to educate people as to what was going on.

Q. Now, Doctor, in July of 2004, did NIOSH issue a report on American Pop Corn?

A. Yes.

Q. And was one of the people that they examined in that report Ron Kuiper?

A. Yes.

Q. Now, does NIOSH make any diagnoses generally? Do they diagnose for an individual?
A. Not usually.
Q. All right.
A. They're there to study populations and groups of people.
Q. Okay. But even this July of 2004 report would be within two years of the time we filed if we filed in January of 2006; is that right?
A. That's correct.
Q. All right. But this was not something that -- Doctor, in your experience, these NIOSH reports aren't generally given out to employees, are they?
A. I've never seen one, although you certainly could ask for it because it's a public document.
Q. All right. But that was the first time that the full report on the American Pop Corn plant was available to the public?
A. Yes.
Q. Now -- but there is something interesting in the plant. First of all, Doctor, in regard to Ron Kuiper, have you reviewed his medical records?
A. I have.
Q. And have you done a physical exam of him?
A. Yes, I did.
Q. And when did you do that?

A. I did that on April 28 of 2006.
Q. Okay. And, Doctor, did you reach a conclusion at the end of your review of his medical records and his physical exam?
A. I did.
Q. And what did you conclude, Doctor?
A. He had bronchiolitis obliterans syndrome.
Q. All right. And, Doctor, do you hold that opinion to a reasonable degree of medical certainty?
A. I do.
Q. And do you, Doctor, have a cause for his bronchiolitis obliterans?
A. Would have been his exposure to butter flavorings while working at the American Pop Corn Company.
Q. All right. Now, Doctor, there's -- Doctor, how did you rule out some other things? I want to go through those. And do you hold that opinion, by the way, that it was caused by butter flavor to a reasonable degree of medical certainty?
A. I do.
Q. Now, Doctor, you know, how did you rule out other things that -- you know, I guess that you could theorize about, things like corn dust or chlorine or any number of things I guess that you could hypothesize about? First of all, Doctor, you know, in this -- these Hill considerations, did he have, in fact, exposure sufficient based on your experience to cause bronchiolitis obliterans?

A. He did.
Q. Tell the jury about that, would you? What exposures are necessary in terms of dose to cause bronchiolitis obliterans?
A. Well, and one of the problems is we don't know exactly what is a dose of -- in humans that will cause a disease. In fact, we don't know what a safe dose is. We've never got the research completed that says what a safe level will be, and there's no regulation that says here's the maximum level you can expose a worker to. So to this day the government has not said what a safe level should be.

But we do know that the people with the highest exposures who were mixers were the ones who had the highest exposure and the greatest risk. The NIOSH study at this plant had, what, I think 6 out of 13 people had bronchiolitis obliterans syndrome, and that's pretty typical for mixers in these microwave popcorn facilities. They got very high exposures because of the work they were doing mixing the butter flavoring in with the oil and the salt and the corn.
Q. Now, did -- when NIOSH came to the plant at Sioux City in 2002, '3, '4, whatever the years were, was Ron currently mixing?
A. No.
Q. And so they were measuring something else. Were they even using the same products, or do you know that?
A. I don't know what products they used when he was a mixer. I don't know what products they were using when NIOSH came in

later.
Q. Okay. But they did measure some peak exposures in the plant; is that fair?
A. Yes.
Q. Doctor, there's a chart in the -- first of all, first of all, generally the levels inside the mixing room were what? High or low?
A. They were generally pretty low when you weren't mixing. And it's one of the pitfalls of looking at an average instead of the continuous levels.
Q. There's a chart. It's 2192.
MR. MCCLAIN: It's out of the same exhibit, Mr. Pagliaro. It's 1106. We have -- that is a new number. That's just our number for this page out of the exhibit for today. It's page 25 out of the exhibit.
MR. PAGLIARO: Thank you.
BY MR. MCCLAIN:
Q. And there's a chart here, and it says results of FTR -- results of FTR realtime diacetyl air concentrations in the mixing room on July 30, 2003. The diacetyl peak occurred immediately after the mixer poured several five-gallon containers of liquid butter flavoring into a mixing tank, over two minutes, and then closed the lid to the tank. What importance does this exhibit have to you, Doctor?
A. Well, if you look at it, this chart's only a half an hour

or so, and if you were to see this as being the only time when it was used during the day, the average during the day would be very low. But you have this one very high peak when the mixing's actually done, and this is a continuous measurement of how much diacetyl is in the air and breathable. And oftentimes these are samplers. We like to put them on the workers and have a source right up on their collar so we get in their breathing zone.

And if somebody is -- as often these workers would do, they'd pour it into a vat, and then they'd open the lid up and look down in there to see if they got it mixed right and see if they needed to add more. That's generally how it's done, rather an art to being a mixer. And as you can see, the level is very low for most of the time until you pour it in. You get the mixture, and then it gets very high for a short period of time. And this is exactly what we saw down in Jasper. It got even higher at that particular facility.

Q. And, Doctor, based on the hundreds of people that you've seen, is this level sufficient to cause the disease?

A. This is clearly sufficient to cause disease in both people and the test animals. It's about four times higher than what we got disease in test animals. And some humans were down at the six part per million which would be below the bottom bar on this.

Q. And, Doctor, can the disease be caused by continuous

exposure of high levels?
A. The question is how much does it take? We don't really know how much dose is poisonous. In some people a short exposure to a high level causes disease. In other people a long exposure to a low level causes disease. That's very typical of poisons. You get both kinds of exposures, and they both cause disease.
Q. So if --
THE COURT: Mr. McClain, can I interrupt you?
MR. MCCLAIN: Yes.
THE COURT: I'm overdue on giving the jury a stretch break, so why doesn't everybody take a stretch break. Thank you.
MR. MCCLAIN: Oh, sure.
THE COURT: Thank you. Please be seated.
Thank you, Mr. McClain.
MR. MCCLAIN: Thank you, Your Honor.
THE COURT: You may proceed. Thanks.
MR. MCCLAIN: Thank you.
BY MR. MCCLAIN:
Q. Now, Dr. Parmet, so based on the testing that was done two years after the fact, after they'd already put in controls in the plant, the levels were still in peak situations high.
A. In the mixing room area, the levels were significantly high, too high to be what I would say would be safe.

Q. Now, Doctor, so going back to our original criteria, he had enough dose.
A. I believe he clearly had enough exposure.
Q. Now let's talk about the things that you ruled out. Doctor, the suggestion has been made that his symptoms really started back when he was working around corn dust. First of all, Doctor, can corn dust cause symptoms?
A. Well, certainly can.
Q. Okay. And what symptoms can it cause?
A. Most people who -- if you get enough dust, anybody gets a stuffy nose and your eyes get irritated. It's simply mechanical. Other people become allergic to corn, and they will have a measurable allergy to corn.
Q. And, Doctor, can it cause shortness of breath for a time?
A. It will until you clear out the dust and all the junk you've breathed in.
Q. Okay. But, Doctor, if you're going to have permanent injury from corn dust, is it necessary to have an allergy to corn dust?
A. Yes. You're going to have -- your body's immune system is going to have to react to it, treat corn like it's an invader.
Q. Okay. And does Ron have any corn-related allergies?
A. No. He was tested here for that.
Q. All right. Let's look at Exhibit 1458. What are we looking at here, Doctor?

A. This is the allergist, Dr. O here in Sioux City, and ran a number of tests looking for allergies. And if you look on the right-hand column, it says foods. Among the foods he was tested for was corn.
Q. And was he positive or negative for those?
A. He's negative for everything here.
Q. Okay. So he has no food allergies.
A. That's correct.
Q. Let's go down this side that it was mold on the corn, et cetera. Is he allergic to any molds?
A. Dr. O also did mold tests, and you can see he's also negative for a series of molds. The one we particularly focus in on is the one called aspergillus which likes to grow on various kinds of grasses, and, of course, corn's a grass.
Q. Okay. And so he was tested for that.
A. Yes.
Q. And he was also tested for grain mill dust.
A. Correct.
Q. Nothing on that either.
A. Correct.
Q. Nothing on trees, grasses, weeds, ragweeds. He doesn't have allergies.
A. That's correct.
Q. Okay. Now, likewise, Doctor, if he's got some -- if he would have had some kind of dust-type disease, is that generally

more associated with an asthma-type situation?
A. You can get an upper airway allergic rhinitis where your nose runs and all kinds of typical runny nose, sore throat, sinus problems, or you can have the asthma down in the lungs, you hear wheezing all the time. Number one, stop the exposure; it goes away.
Q. And by the way, Doctor, do we know that even after he started working in the grain area and he had exposure to grain dusts that he was normal in regard to treadmill testing?
A. That's correct.
Q. Look at 1467. 1467, what does this tell you, Doctor? This is '88.
A. This is in 1988 he had -- Dr. Fell did a treadmill exercise tolerance test where he was on a treadmill using what's called a Bruce protocol which means the speed of the treadmill keeps increasing and the angle of the treadmill keeps increasing so that by ten minutes you feel like you're trying to run up a wall. He goes ten and a half minutes on the treadmill, and that's very good.
Q. So he goes ten and a half minutes in 1988 after he's been exposed to the alleged corn dust that has been suggested, and he -- by the way, Doctor, do you test pilots as part of your Air Force work?
A. I do. I'm an examiner for the FAA, and I actually deal with commercial airline pilots and have to deal with waivers.

Some of them had heart problems. And so I do treadmills all the time. They have to go nine minutes before we'll recertify.

Q. So Ron would have qualified as a pilot back in '88.

A. At least by his heart.

Q. Okay. Now, then, Doctor, we were talking a minute ago about reversibility in asthma-type symptoms. Doctor, do the majority of the records from Mr. Kuiper's doctors show that this is a fixed airway disease, not a reversible disease?

A. They tend to show that his obstruction is fixed, it doesn't change very much. If you give him drugs, bronchodilators to try and open him up, he has a little response, but it's not very much.

Q. Okay. And, Doctor, what does that tell you?

A. It just tells us the bulk of his disease is fixed.

Q. Now, can you have -- Doctor, in your experience with these microwave popcorn workers and these diacetyl-exposed people, can you have some reversibility even in their disease?

A. Yeah. We found about a third of the people had just reversible disease and a third had a mixture of both completely fixed and reversible disease together. So you had part of your lung loss was due to a fixed obstruction, and part was due to reversible obstruction.

Q. Okay. And so the fact whether it's reversible or not, it still can be bronchiolitis obliterans syndrome.

A. That's correct.

Q. But, Doctor, in his case, do the majority of reports show that it's reversible or not reversible?
A. Mostly it's very, very little reversibility if it shows any at all.
Q. Let me show you Exhibit 1926.
MR. MCCLAIN: And actually, Scott, I want -- 1292 is what I want. I'm sorry. This is from '92. This is the earliest one. Actually, Scott, I want 1087. I'm sorry, 1087.
Q. 1087, Doctor, this is a report post-bronchodilator report.
MR. MCCLAIN: I think you need the one before this to show the pre, Scott. It's 1457.
Q. What are we looking at here, Doctor?
A. This is a pulmonary function study, and what they've measured is you can see the value that's highlighted is called the FEV1 or the forced volume of air that he can blow out blowing as hard as he can in the first second. And he's able to blow out in this case 2.97 liters which for somebody of his age, a man, his height and race, that's 36 percent of average.
Q. Okay.
MR. MCCLAIN: And then go to the post-bronchodilators then, Scott, the one that we had up before which is Exhibit 1087.
Q. Post-bronchodilators, does he show much improvement with those?
A. You can see he's improved to 38 percent here, and that's

not considered significant. You want an increase. We used to say 12 percent. Now some criteria want 15 or 20 percent increase before it's considered significant.

MR. MCCLAIN: And, Scott, then go to 1440 if you would.

Q. And this is a 2002 record. 1440 from Dr. Bacon, and it says there is no improvement with bronchodilators. Severe obstructive lung disease with progression over the last six years with no improvement post-bronchodilators. Do you agree with Dr. Bacon's assessment in that regard?

A. Yes, I do.

Q. Now, Doctor, the other thing that I wanted to ask you about in regard to this pattern is chlorine. Doctor, do you know something about chlorine?

A. Afraid I do.

Q. Tell the jury what you know about chlorine.

A. Well, one of my jobs when I was in the military was in chemical warfare defense and biological warfare defense. Chlorine gas was used as a war gas in the First World War, and we had prevention and training for that gas. After I retired, I've been involved in a research program for the Department of Defense, again, dealing with defense against chemical and biological agents. So I continue to deal with chlorine and some other much nastier chemicals.

Q. Now, do you -- have you ruled out exposure to chlorine in

Mr. Kuiper's case as being the cause of this disease?
A. Yes.
Q. Tell the jury why.
A. Well, there's no chlorine exposure.
Q. No chlorine ex -- well, the defendants have said he was exposed to something called Chlor-10 which is a 10 percent solution of sodium hypochlorite. Isn't that chlorine?
A. No. That's bleach.
Q. And so when they say that he was exposed to chlorine, is that absolutely false?
A. That's incorrect. You know, your household bleach you would use in your washing machine is 6 percent, so this is a little stronger solution than sodium hypochlorite. You could drink it, but I don't recommend it because it will give you an upset stomach.
Q. And, Doctor, to make chlorine, what must you mix sodium hypochlorite with?
A. If you read one of these bottles of Clorox, it will say don't mix with ammonia because if you do that, then you will generate chlorine gas. That's dangerous.
Q. Okay.
A. And that's immediately obvious to everybody. If you do it, you will have burning of your eyes and nose and throat. You couldn't stand to be in a room with that gas release for more than a few seconds, and nobody will voluntarily do that. It

will corrode your clothes. It will eat away metal. It's a very, very reactive gas.

Q. And by the way, Doctor, do people even exposed to chlorine, do they leave the area before they ever have any lung involvement?

A. I certainly did, and I had an unfortunate incident myself where I was blind for a few days due to a chlorine gas exposure. I had -- you know, you just -- you can't breathe it. It's way too irritating. Nobody will voluntarily do that. So the only time we see chlorine injuries to the lungs are people who are trapped and have no way to get out, can't do anything, can't escape.

Q. Now, the other thing is, Doctor, is that it's been suggested that because it wasn't found on the CT scans, that a mosaic pattern so-called was not found on a CT scan, that means he doesn't have bronchiolitis obliterans syndrome. Is that true either?

A. No, it's not.

MR. MCCLAIN: Scott, would you go back to Exhibit 1234. And would you go to the quote at 502, Scott, on this issue. It's -- no, it's on -- let me find it, Scott. I'll tell you where to go. It's on high-resolution CAT scan, Scott, is the quote I'm looking for from that page. Yes.

Q. It says, "Cases of bronchiolitis obliterans are easily missed. High-resolution CAT scans may be normal during

inspiration as BOS requires expiratory HRCT to visualize air trapping." Is that your experience as well?
A. Yes.
Q. Frequently? And was his 2005 HRCT an inspiratory or expiratory view?
A. He just had a single inspiratory, you just hold your breath and then the computerized tomography is done. If you don't match it with an expiratory film, try and collapse the lungs, you won't see the scarred areas. You'll miss them.
Q. And even if you do that incorrectly, you'll still miss them.
A. That's correct.
Q. So, Doctor, sum it up for us then if you could. What is your -- what is your diagnosis?
A. He has bronchiolitis obliterans syndrome or flavoring-induced bronchiolitis obliterans. He worked as a mixer mixing butter flavoring which is -- tells us historically he had exposure to these chemicals, particularly the diacetyl. And in that frame that's when he began having his lung problems. He's followed the typical pattern that when he stopped that exposure, although his lung disease is bad, it has not crashed. It hasn't plunged down and become fatal in six months like most bronchiolitis obliterans cases, but instead he stayed bad for a very long time and continues to do that.
And he doesn't have other causes. He's not a smoker.

He hasn't had horrible lung infections before this, didn't have chest trauma, doesn't have other chemical exposures.

So I don't see any other reason to think he would have any other lung disease. His pattern is like other mixers in that plant and in other plants around the country. He's got bronchiolitis obliterans syndrome.

Q. And this is Exhibit 1294. I want to ask about this, Doctor, because the suggestion was made that he's got other problems, and he certainly does. But in regard to his -- in regard to his hypertension, his high blood pressure, and his heart disease currently, does his doctor, Dr. Farrell, relate those two to his bronchiolitis obliterans?

A. Well, I think in terms of the term you see here, cor pulmonale, which indicates failure of the right side of the heart, very likely that's correct because that would correlate with the heart trying to push blood into a very stiff, hard lung and having to work much harder. And the right heart is not nearly as strong as the left side. So you can get right-sided failure which is called cor pulmonale.

Q. Okay. It's 2194. It's a new exhibit number. It's out of the medical records which is a group exhibit. But the date, so you'll be able to find it, is 2-21-07 from Dr. Farrell's records. And by the way, Dr. Farrell has -- in 2007 has clinically presented as bronchiolitis obliterans with resultant pulmonary hypertension presenting as cor pulmonale picture.

So did you find this, Doctor, that after 2006 his doctors are beginning to come around to this diagnosis as well?
A. I think they now know what the pattern looks like. They know what that picture is, and they recognize it too.
Q. Okay. Now, the last thing that I wanted to ask you about, Doctor, was this. Just how long did it take from the time that you contacted NIOSH or that you contacted the Missouri Department of Health who contacted NIOSH for NIOSH to come to their preliminary conclusions regarding the association between butter flavor and this disease pattern?
A. The preliminary results at our meeting were about 15 months later and until the first published -- major published article, not just mine, is 22 or 23 months later.
Q. Okay. So at 15 months there was a preliminary report, and there was a published report within 2 years essentially.
A. Correct.
Q. So if as an example there was another company that had bronchiolitis obliterans in their plant beginning in 1992, within 2 years, NIOSH in this plant had figured it out, so 2 years from 1992 to 1994 would be that same kind of a time period. Is that what you're telling us?
MR. PAGLIARO: Objection. Calls for speculation.
THE COURT: It's leading. Can you actually ask it in a nonleading way, and then we'll see if there's another objection from Mr. Pagliaro.

BY MR. MCCLAIN:
Q. Here's the question, Doctor. They figured it out in two years?
A. Yes.
Q. And if -- Doctor, was all the science available in 1994 to figure this out if someone had asked the question back in 1994?
A. There, of course, had been some scientific developments or resolution was a little better on a few items. But basically the same things were in place.
MR. MCCLAIN: Thank you, Doctor. I have no further questions.
THE COURT: Okay. Why doesn't everybody take a stretch break. Well, you know what? It's so close to ten. Mr. Pagliaro, any objection if we take our break now?
MR. PAGLIARO: No. I'd like the break, Your Honor.
THE COURT: Okay. Thank you. We'll be in recess until 10:25. Keep an open mind till you've heard all of the evidence in the case. Thank you.
(The jury exited the courtroom.)
THE COURT: Counsel, anything we need to take up?
MR. PAGLIARO: No, Your Honor.
THE COURT: Okay. Thank you.
(Recess at 9:58 a.m.)
THE COURT: Mr. Pagliaro, ready for the jury?
MR. PAGLIARO: Yes, Your Honor.

THE COURT: Okay. Thank you.

(The jury entered the courtroom.)

THE COURT: Thank you. Please be seated.

Mr. Pagliaro, you may cross-examine.

MR. PAGLIARO: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. PAGLIARO:

Q. Good morning. Good morning, Dr. Parmet.

A. Good morning.

Q. How are you this fine Monday morning?

Dr. Parmet, Mr. McClain talked a little bit about your background, so I'm going to start with that. You mentioned you're trained in occupational medicine; is that correct?

A. That's correct.

Q. And you spent the first part of your life after a training in aerospace medicine.

A. Well, in the Air Force I was doing both.

Q. Okay. And you are board certified in aerospace medicine; is that correct?

A. That's correct.

Q. And you've written a lot -- lots and lots of books on the field relating to aerospace medicine and space medicine; is that true?

A. Well, I've published in both areas, predominantly aerospace.

Q. Now, areas that you're not certified in include internal medicine. You're not an internist, are you?
A. That's correct. I'm not.
Q. And you've mentioned you've done work in toxicology and that you're working on your Ph.D., but you're not board certified in toxicology, at least as of now.
A. Well, there's actually no such thing as a certification in toxicology. It's not considered a medical specialty.
Q. But you don't have a Ph.D. in toxicology.
A. That's correct. I don't.
Q. And we've heard testimony about a certified industrial hygienist, someone who goes in, takes measurements in an occupational setting, and designs or recommends breathing controls and personal protective equipment and ventilation. You're not a certified industrial hygienist, are you?
A. That's correct.
Q. Now, we've also heard pulmonary doctors, and we'll talk a little bit more about this later on. But you're not certified in pulmonary medicine, are you?
A. No, I'm not.
Q. And what's a pulmonologist, Doctor?
A. It's an internist who's done additional training in pulmonary medicine.
Q. In fact, Mr. Kuiper has been seeing a pulmonologist locally for several years. Is that not true, sir?

A. Yes.
Q. He's been seeing Dr. Bainbridge, a pulmonologist, since the year 2005; is that correct?
A. I think that's about right. Yeah, March of 2005 was when he first went.
Q. Thank you. Thank you, sir. And you're not -- Dr. Parmet, you're not Mr. Kuiper's personal physician, are you, sir?
A. That's correct.
Q. He doesn't come to you for regular office visits?
A. No.
Q. You don't prescribe testing for him; is that correct?
A. That's correct.
Q. And you don't prescribe his medications.
A. That's correct.
Q. And, in fact, even today he's on medications that include inhalers and bronchodilators; isn't that true?
A. That's correct.
Q. And you don't monitor his health on a regular basis.
A. That's correct.
Q. In fact, when you met Mr. Kuiper in April of 2006, you made it clear to him at your first meeting that you don't have a doctor-patient relationship with him; is that correct?
A. That's correct.
Q. You warned him about that because the confidentiality issues are different for those folks who enjoy that

relationship; isn't that true, sir?
A. That's correct, so regardless of why I'm seeing somebody, I start with that premise, that they understand when I do that kind of exam there's not a doctor-patient relationship so that they know that anything that I write down in the report could end up in the public. And so they need to know they're public -- their potential loss of confidentiality. So I start with that. That's very important.
Q. Yes. And when you saw the Kuipers originally, you saw them in Kansas City in your office?
A. That's correct.
Q. And that was in April of 2006?
A. That's correct.
Q. And I believe you told us that the first time you saw them you spent a couple of hours with them. Is that about right?
A. That's correct.
Q. And Mr. Kuiper didn't select you, Dr. Parmet, to see out of a phone book, did he, sir?
A. No.
Q. And he didn't ask his treating doctor at the time, Dr. Farrell, to refer him to someone else, did he, sir?
A. I don't think so.
Q. And Mr. Kuiper obviously doesn't live in Kansas City where you live.
A. No.

Q. And, in fact, the trip from Sioux City to Kansas City, that drive, would take several hours, wouldn't it, Dr. Parmet?
A. Yes.
Q. And the Kuipers actually came by car and visited with you in Kansas City?
A. I presume they drove. Most -- that's how I come up to Sioux City so . . .
Q. And did Mr. Kuiper come alone, or was he accompanied by anyone? Do you recall?
A. He was with his wife.
Q. Was there someone else there as well?
A. Well, when I saw him in my examining room, his wife was there. If he had somebody else waiting, I don't know.
Q. Thank you. And Mr. Kuiper was not referred to you which is a common thing in the medical profession. Doctors refer doctors (sic) to other doctors or specialists; isn't that true? He wasn't referred by another doctor, was he?
A. That's correct.
Q. And you knew at the time and I believe you refer to it that Dr. Farrell was Mr. Kuiper's primary treating physician.
A. That's correct.
Q. And the person who actually asked you to see Dr. Kuiper (sic) was a lawyer; isn't that right?
A. That's correct.
Q. And that lawyer was a lawyer that works with Mr. McClain.

A. That's correct.
Q. And you mentioned in your testimony that Mr. McClain's office has referred dozens, maybe hundreds of patients to you; is that correct?
A. Well, I wouldn't say hundreds, but certainly dozens.
Q. Okay. Do you know when the first lawsuit like this was filed, Dr. Parmet?
A. I don't.
Q. Okay.
A. Some years ago.
Q. How long have you been seeing patients referred by Mr. McClain's office? Let me ask you that question.
A. Hmm. I think possibly 2003.
Q. 2003? So Mr. Kuiper was certainly not the first patient you saw.
A. No.
Q. And, in fact, you saw him in 2006. It would have been three years since you saw the first patient referred to you; is that correct?
A. That's correct.
Q. Now, you reviewed medical records in conjunction with Mr. Kuiper's case; is that not true, sir?
A. That's correct.
Q. And you mentioned that you got those medical records from Mr. McClain's office?

A. That's correct.
Q. And you looked at those, and I believe you said in your direct testimony it only took 15 minutes for me to conclude that this man had bronchiolitis obliterans. Did I get that right?
A. No, you didn't.
Q. Okay. Was it 15 minutes or longer?
A. It was -- with the original group of 9 people, it really took only 15 minutes to look through those records and realize I had a group of people with bronchiolitis obliterans. With Mr. Kuiper, I would have gone through all his records and reviewed everything I had available, and I don't know exactly how much of his records I had at that time.
Q. Okay. And did Mr. Kuiper carry any records with him when he met with you in April of 2006?
A. They would have been sent in separately.
Q. And they would have been sent in by the law firm.
A. That's correct.
Q. Now, Mr. Kuiper's medical records have a lot of material in them about a variety of conditions that he has; isn't that true, Doctor?
A. There are a lot of diagnoses on there, yes.
Q. Yeah. But, I mean, aside from issues relating to his lungs and his breathing, he's got other medical issues and has had for a long period of time.
A. That's correct.

Q. He's got -- he's had hernia repairs, for example. He's been in the hospital several times to have hernia repairs.
A. That's correct.
Q. And he's had persistent high blood pressure going back many, many years; isn't that true?
A. That's correct.
Q. Your report notes several instances in the medical records where Mr. Kuiper's being treated for high blood pressure, taking medications for high blood pressure; isn't that true, sir?
A. That's correct.
Q. And Mr. Kuiper also had a stroke in 2001; isn't that true?
A. That's correct.
Q. And he's got some family history of high blood pressure as well, doesn't he, Dr. Parmet? Do you recall that?
A. Let me go look at the record.
MR. MCCLAIN: Your Honor, could we have a short recess?
THE COURT: Yes. You mean you want me to send the jury out?
MR. MCCLAIN: No, sir. Well, that might be a good idea. We're going to have to have a few minutes here to . . .
THE COURT: Okay. Okay. Members of the jury, we're going to take a short recess, probably be about ten minutes or so. Thank you.
(The jury exited the courtroom.)

THE COURT: Thank you. We'll be in recess for ten minutes. Thank you. Sorry for the interruption.

MR. PAGLIARO: Not a problem, Your Honor.

(Recess at 10:34 a.m.)

THE COURT: Thanks. Please be seated.

Mr. McClain, how are things going?

MR. MCCLAIN: I've -- he's in extreme pain, and so he's calling his doctor, but I've said to wait in the hallway until noon so we can assess his situation. So -- but I knew that we would -- I was trying to avoid a scene in front of the jury. That's why I took the break because I could hear he was groaning.

THE COURT: Okay. Are you ready to proceed?

MR. MCCLAIN: I am.

THE COURT: Okay. Thank you.

(The jury entered the courtroom.)

THE COURT: Thank you. Please be seated.

Mr. Pagliaro, thank you.

MR. PAGLIARO: Thank you, Your Honor.

BY MR. PAGLIARO:

Q. Before we paused, I'd asked you if there was any family history of high blood pressure that you took from Mr. Kuiper.

A. I didn't particularly see any that I noted, but it wouldn't be unusual if there was.

Q. You did note I think that his brother had had a stroke I

believe.
A. Yes, but that is not always due to high blood pressure.
Q. Understood. But did he recount to you that his mother had had high blood pressure? Did he recount that?
A. He did not.
Q. He did tell you his mother died of colon cancer; is that correct?
A. Yes.
Q. And, in fact, Mr. Kuiper himself has had problems during a colonoscopy. There was a polyp removed; isn't that true?
A. Yes.
Q. Now, Mr. Kuiper never smoked you noted in your records; is that right, Dr. Parmet?
A. That's correct.
Q. Now, Mr. Kuiper's father did smoke; is that true?
A. That's correct.
Q. And Mr. Kuiper was exposed to secondhand smoke from his father smoking for a period of time when he lived with his parents; is that correct, sir?
A. That's correct.
Q. Now, he lived with his family till he was about 21, and he took over the family farm. Did you see -- did he mention that to you during his interview?
A. Yes.
Q. Now, the first medical record that you saw from Mr. Kuiper,

Dr. Parmet, was a 1988 record that Mr. McClain talked about; isn't that correct?
A. That's correct.
Q. And that's from Dr. Fell.
A. That's correct.
Q. When was Mr. Kuiper born, sir?
A. January 2, 1940.
Q. 1940, so by my math, by the time -- the first -- excuse me. Strike that.
By my math the first medical record you saw was by the time Mr. Kuiper was 48 years old.
A. That's correct.
Q. Did you see any medical records prior to that time?
A. No.
Q. So you don't have a history of his childhood diseases or medical history when he was in his 20s or 30s, do you, sir?
A. I don't have medical records from that time.
Q. Okay. And you don't -- and you didn't ask for those or get authorization to go seek those out.
A. That's correct.
Q. Is it likely, Dr. Parmet, as a doctor who's been practicing for many, many years that someone would have no medical records for the first 48 years of their life?
A. Well, some people do. It's unusual, but it does happen.
Q. Mr. Kuiper certainly is not someone who doesn't visit the

doctor frequently, is he, in your experience from what you've seen in the records?
A. In the last ten years he certainly has had to visit doctors frequently.
Q. And when you took a history from Mr. -- part of what's important in doing an occupational medicine assessment is taking a history from the patient; is that true, sir?
A. That's correct.
Q. That's something people in your field look to to give you the information you need to eliminate other things that could be a cause of someone's problems; is that true, sir?
A. That's correct.
Q. And you took a medical history from Mr. Kuiper; isn't that right?
A. I did.
Q. Now, the medical history, again, prior to when he worked at the plant was pretty sketchy, wasn't it, Dr. Parmet?
A. Well, I'm relying on Mr. Kuiper's memory.
Q. Yeah. And you mentioned I believe that Mr. Kuiper was a -- what you called a poor historian; isn't that true?
A. Yes.
Q. Now, we mentioned the fact that he worked on a farm. He was actually raised on a farm in Minnesota; isn't that true? He told you that.
A. Yes.

Q. And he then took over that family farm for a period between 1961 and 1968; is that correct?
A. Yes.
Q. And you mentioned in your report that he worked as an Orkin exterminator for several years; isn't that true, sir?
A. Yes.
Q. 1980 and 1981? Do I have those years right?
A. Yeah, that's correct.
Q. And he mentioned to you that he was exposed to chemicals during that period of time including something called malathion?
A. Malathion.
Q. Malathion, okay. Is that a toxic chemical?
A. Yes, it's quite poisonous.
Q. And it's been associated with problems relating to people's health?
A. It will kill you.
Q. Now, Mr. Kuiper told you that he went to work at APC in 1986.
A. He told me eighty-f -- I'm sorry, '86. I'm having troubles with my trifocals here, folks.
Q. I have the same problem, Dr. Parmet. 1986. We agree on that; right?
A. Yes.
Q. And he told you he originally worked in the corn shelling area; is that right?

A. That's correct.
Q. Did he describe for you the conditions in that area at the American Pop Corn plant at that time?
A. He just described that it was a dusty area. I know what shelling corn is like. I've done it myself.
Q. Yes, sir. And did he tell you -- he did tell you, did he not, that his breathing problems started when he was in the breathing -- in the corn shelling area?
A. He was not exactly sure when his breathing problems started, and he was thinking around -- when I was talking to him around 1991.
Q. Okay. Did you see the fact that NIOSH interviewed Mr. Kuiper, Dr. Parmet?
A. Yes.
Q. And did you see his questionnaire responses to NIOSH?
A. I don't have my notes on that one here. That would have been around 2003, though.
Q. Do you know what he told -- when he told NIOSH his breathing problems started?
A. I don't recall.
Q. You don't recall?
A. No.
Q. Did you see his --
A. I saw it at some point. I don't recall what he said there.
Q. You did see it? Let me refresh your recollection.

MR. PAGLIARO: Could you put up Exhibit 3689, please, Cort, 002?

Q. Now, NIOSH sent a questionnaire out to people that worked in that American Pop Corn plant; isn't that right?

A. That's correct.

Q. That's pretty standard procedure, isn't it, Dr. Parmet?

A. Do you have the date of this, when he completed it?

Q. Yes, it might be in there. It's up at the top. It says interview date. Do you see it up there, Dr. Parmet? I've got the same problem with the small print that you do.

A. Yes.

Q. And what does that date disclose to you?

A. July 23, 2002.

Q. And that's another point I wanted to make with you. Mr. Kuiper -- the report from NIOSH came out in '04, isn't that right, about this plant?

A. That's correct.

Q. But the interaction between NIOSH and the employees in the plant like Mr. Kuiper, Mr. Kuiper sent this questionnaire out, his answers to his questionnaire, on July 23, 2002; isn't that right?

A. That's correct.

Q. And Mr. Kuiper indicated in response to the question in what month and year did this breathlessness start -- do you see that?

A. Yes.
Q. And what date does he give?
A. He gave September 1989.
Q. Okay. And you know from looking at his medical records, Dr. Parmet, that, in fact, he did complain, for example, to Dr. Fell of shortness of breath in 1988.
A. That's correct.
Q. Now, I noticed that you had several dozen actually medical records listed in your report; isn't that true, sir?
A. Yes.
Q. And you had looked at a number of his medical records over a period of time between 1998 and right before you saw him; right, Dr. Parmet? 2006.
A. That's correct.
Q. So a long period of time. But you don't -- you know you don't have every single medical record here.
A. I know this was incomplete.
Q. Yes. And one of the medical records you don't have, for example, is a record that dates 1990; isn't that true? Do you know that? I'm asking you a reverse question. Do you know what you don't have in here?
A. How would I know I don't have something if it exists or not?
Q. I know. It's an absurd question, isn't it? Let me rephrase it.

Have you seen a medical record on Mr. Kuiper from a Dr. Robinson in 1990? That's a better question.
A. I don't believe so.
Q. Okay.
MR. PAGLIARO: Would you put up 3031, please, Cort, 004?
Q. Let's see if you've seen this before, Dr. Parmet. This is Ron Kuiper, the date, 11-30-90. Do you see that, sir?
A. Would you extend that down so I can see who the actual signature is?
Q. Sure. It's Dr. Robinson. It's on the bottom there.
MR. PAGLIARO: Go all the way down, Cort, so Dr. Parmet can see the signatures.
Q. See that?
A. Okay. Thank you.
Q. You're welcome, sir. Now, this note is 1990; is that correct?
A. That's correct.
Q. And the patient at that time, Mr. Kuiper, was 50 years old.
A. Correct.
Q. Now, he states he's had a persistent cough; is that correct?
A. Correct.
Q. And he states that he developed some, quote, decreased ability to breathe towards the end of the day and into the

evening, unquote.
A. Correct.
Q. He states he has some trouble getting air; is that correct?
A. Correct.
Q. And then down further it says, "The patient has been having this problem for two to three months. With that he coughs up some whitish sputum at times." Do you see that?
A. Yes.
Q. Were there other references, Dr. Parmet, in the medical records that you saw over this period of time to Mr. Kuiper coughing up sputum?
A. Well, he had some entries in here, mostly with his runny nose.
Q. Did you notice in other medical records that you reviewed, Dr. Parmet, the reference to Mr. Kuiper coughing up sputum?
A. Yes.
Q. Okay. Now, Mr. McClain asked you several questions about the American Pop Corn plant where Mr. Kuiper worked. Were you ever in that plant, Dr. Parmet?
A. No.
Q. You did visit the Jasper, Missouri, plant; is that right, sir?
A. Yes.
Q. And the Jasper, Missouri, plant was making microwave popcorn and popcorn products; is that true?

A. That's correct.
Q. Is that the only product they made at that plant, Dr. Parmet?
A. That's correct.
Q. Same thing with the American Pop Corn Company. You've read the OSHA report, basically the NIOSH report, excuse me, and -- let's start over again.
Looking at the APC plant as well and the NIOSH report and your knowledge of it, the only thing they made there were popcorn products; is that true, sir?
A. You know, I don't recall.
Q. Okay. It's never been suggested to you there were other things being used there besides the ingredients for popcorn, is it?
A. Hasn't been suggested to me.
Q. And you never personally observed the conditions in the APC plant in Sioux City, did you?
A. No. That would have been 12 years after he left it anyway.
Q. And certainly you wouldn't have observed it when he was there certainly.
A. That's correct.
Q. But you did observe the conditions in the Jasper plant that -- it's Gilster-Mary Lee plant; is that right?
A. Yes.
Q. And you looked at those conditions. NIOSH was in both

plants as well, and did NIOSH say that the conditions at the American Pop Corn plant when they were there were the same as the conditions in the Gilster-Mary Lee plant?
A. Every plant has a little different facilities. Mostly they were looking at what diacetyl levels were throughout facilities and why the averages were different.
Q. But didn't they find, NIOSH, that the levels of exposure they saw were much lower in the APC plant than they were in the Jasper plant?
A. On the whole, that's correct.
Q. And, in fact, at some points they refer to those levels as being extremely low; isn't that true, Dr. Parmet?
A. Yes.
Q. And now, Mr. Kuiper mentioned to you in your report -- you make note of this -- that he was to wear a respirator when he was in the mixing room; isn't that true?
A. That's correct.
MR. PAGLIARO: Now, could you put that report up, please, Cort? It's Plaintiffs' 1060, page 2.
Q. And this is your report, is it not, Dr. Parmet?
A. That's correct.
Q. And this is Mr. Kuiper telling you what he recalls at that time in 2006 when you spoke to him; correct, sir?
A. That's correct.
Q. And he reported to you that the onset of breathing problems

may have begun in 1991; isn't that true?
A. That's correct.
Q. And, in fact, you actually saw records showing that in 1988 he was reporting some breathing problems; isn't that true?
A. That's correct.
Q. And again he said he got short of breath and referred to coughing up phlegm. Do you see that?
A. Yes.
Q. Particularly when exposed to dust. Is that true?
A. That's correct.
Q. And phlegm and sputum are the same or similar?
A. No, they're not.
Q. No, they're not? Okay. You're the doctor.
A. Well, technically sputum is fluid that originates in your lung. If you're just clearing your throat and maybe saliva, maybe runny nose, anything people spit out, usually phlegm.
Q. Fair enough.
A. So they may not be the same thing at all.
Q. What Dr. Robinson referred to in 1990 was sputum, wasn't it?
A. That's the term he used. You really actually to tell them apart have to be very careful.
Q. And he mentioned that he got short of breath -- he mentioned to you that this originally occurred with corn dust.
A. That's correct.

Q. But when he switched to oil mixing, he said he got worse; is that right?
A. That's correct.
MR. PAGLIARO: Excuse me, Your Honor. I'm trying to align my paragraph with that paragraph. And it's a little tough to read.
Q. He mentioned to you that he used flavors from several companies during that interview?
A. That's correct.
Q. He told you he felt that the pails of flavoring provided by North American Flavor was, quote -- you quoted this, really strong.
A. That's correct.
Q. And he always tried to avoid mixing that one.
A. That's correct.
Q. And he referred to the fact he could smell the flavor from North American Flavor through his mask.
A. No, he didn't specify that one. He said all the flavors could be smelled through the mask.
Q. Then he said he noted that a flavor called Fries & Fry which was a powder that was used did not bother him much.
A. Correct.
Q. Then further on down, Doctor, right below that part, it says he often did not wear a mask when adding flavors as he was told to only wear it when mixing salt. Did I read that

correctly?
A. Yes.
Q. And that is what Mr. Kuiper recounted to you when he spoke to you in 2006.
A. That's correct.
MR. PAGLIARO: Thank you, Cort.
Q. Now, Mr. Kuiper told you that his breathing problems did get worse in 1995. You mentioned that a minute ago; correct?
A. Correct.
Q. And you also noted that there was a report by a Dr. Bacon who saw Mr. Kuiper and that Mr. Kuiper was actually taken out of the mixing room of the plant due to those issues; isn't that true?
A. That's correct.
Q. Recurrent bouts of bronchitis you put it; right?
A. Correct.
Q. And he told Dr. Bacon in 1996 that he had shortness of breath when exposed to popcorn dust as well as other ingredients; is that true? Do you see that?
A. Yes.
Q. Thank you, sir. Now, isn't Dr. Baker -- Bacon, excuse me, one of the doctors who noted that Mr. Kuiper had some relief from bronchodilators?
A. Do you mean with bronchodilators?
Q. With bronchodilators, thank you. Is that true?

A. That's correct.
Q. And you mentioned that they weren't consistent but that you conceded and your report indicates that there were times when bronchodilators were administered and that Mr. Kuiper had some relief in his breathing with those.
A. That's correct.
Q. And he's still on them today; isn't that true?
A. That's correct.
Q. Now, you talked a lot about corn dust in your direct examination. Do you recall that?
A. I was asked about it, yes.
Q. You were asked about it, spoke about it. Corn dust has been known to cause reactive airway diseases like asthma; isn't that true?
A. That's correct.
Q. And when you went to the Jasper plant, you did look at the area where corn shelling was done and where corn was being handled because as an occupational doctor you believed there may be some cause-effect relationship between breathing problems in that plant and corn dust exposure.
A. That's correct.
Q. Now, you didn't conclude that in that case, but you thought it could be a cause.
A. That's correct.
Q. Now, as part of your job as an occupational medical doctor,

you know about workplace exposure assessments; isn't that true?
A. Yes.
Q. Would you agree with me that the managers of the American Pop Corn plant based on what you know from reading the reports and what Mr. Kuiper told you, they did try to control the work environment where Mr. Kuiper worked?
A. I think the way they had their plant set up at the time he worked there was reasonable and consistent with the state of knowledge.
Q. Yes, sir. And you'll agree with me that the American Pop Corn plant owners and managers, they certainly designed the plant and its operations?
A. I don't know who designed the plant, but it's set up to function and do its job.
Q. My point is they're responsible for that, the functioning of the plant; is that correct?
A. That's correct.
Q. And certainly Mr. Kuiper's managers and supervisors would be the ones assigning him his job duties; isn't that correct?
A. Correct.
Q. And they would be assigning him personal protective equipment if he used it; is that correct?
A. That's correct.
Q. And certainly you know that there was ventilation and exhaust in that plant, and they would have been responsible for

installing those features in the mixing room; isn't that true?
A. That's correct.
Q. And likewise, the product that they sold, the Jolly Time Popcorn, that's their product, isn't it?
A. That's correct.
Q. Now, you diagnosed Mr. Kuiper with bronchiolitis obliterans syndrome; isn't that true?
A. Correct.
Q. And at the time you talked to him and examined him, you found his condition relatively stable.
A. Yes.
Q. And you also noted that for a period of time after that between -- based on your record between '96 and 2006, you felt his condition was relatively stable, Doctor?
A. That's correct.
Q. Now, you mentioned that you did consider -- oh, let me ask another question.
MR. PAGLIARO: Strike that, Your Honor. I'm sorry.
Q. What's a differential diagnosis, Doctor?
A. It's basically a list of items that could potentially be the cause of whatever disease or process the patient has. Any time we see somebody and examine them and listen and start doing testing, we have this menu that we're going through, potential cause. And we'll -- that list of potential problems is called the differential diagnosis.

Q. And you would have as a good occupational physician gone through that process with Mr. Kuiper.
A. Yes.
Q. And so you figure out what might cause a breathing problem, and then you proceed to try to eliminate it or confirm it; is that fair?
A. That's correct.
Q. And what are some of the things that you looked at that you consider might have been the cause that you didn't conclude were the cause?
A. Well, I looked -- the number-one cause I see in people with breathing problems is smoking history, and he has -- he's never been a smoker. He had some environmental exposure as a child and up to age 21 but not since, so that's not going to cause what he has. I looked at the other potentials such as we mentioned, corn dust and aspergillus exposure, allergies. Doesn't have those. He doesn't have the congenital lung diseases.
Q. Did you consider the malathion?
A. Oh, I've dealt with malathion. That's an organophosphate pesticide. It's a neurotoxin. You can kill somebody very quickly with malathion, but it does not cause this kind of lung disease. It damages your nervous system. And if you had enough to damage your lungs, you'd be dead long, long before from the neurologic poison. It's also very short acting. And even

somebody -- I've treated people with potentially lethal exposures, and when they recover in a few days and we get their enzyme systems restored, they're fine.

Q. Did you consider his farm work, Doctor?

A. I did. And we would have expected somebody to have either allergies which he doesn't have. Sometimes the fungi aspergillus which I mentioned can cause an allergy but can actually cause an infection too. You would not miss that on a chest X-ray because it causes a great big hole in your lung. No missing that one, and clearly he doesn't have that.

His pulmonary docs, his family docs had seen him and looked at all these other potential causes, and what they were doing was typically saying he's got this obstructive disease and looks like obstructive disease and we're getting this mishmash of diagnoses that is absolutely typical for everybody until we finally identify that this was the problem, this was the cause.

Q. Let's talk about that for a minute. You mentioned the problems that you had in Jasper with the nine cases and people going to their own personal physician and those physicians coming up with a variety of causes in that period of time; is that correct?

A. That's correct.

Q. What period of time was that when those folks were being looked at?

A. They were being looked at from the early '90s, about '93,

up till 2000.
Q. Now, Dr. Bainbridge, for example, he was actually called in by the plant to actually help them sort of figure out what was going on in the plant, wasn't he, sir? Do you know that?
A. I don't know that.
Q. Okay. You didn't see any evidence from NIOSH records that he was called in by the plant to help with that NIOSH investigation?
A. No, I don't.
Q. And Dr. Bainbridge has not so far concluded that he has bronchiolitis obliterans; isn't that correct?
A. I think you should actually ask him his conclusion, but what he has -- I read this as he's not gotten to absolute medical certainty which for us really means a 95 percent chance.
Q. But doctors in good faith have different opinions about things, don't they, Doctor?
A. That's correct.
Q. And in point of fact, you mentioned yourself this is a difficult disease?
A. I'm sorry? I missed what you --
Q. It's a difficult disease to diagnose?
A. That's correct.
Q. It's a complex process?
A. Yes.
Q. It's one that people sometimes disagree with; isn't that

true?
A. That's correct.
Q. Now, Mr. Kuiper had a CT scan, did he not?
A. Yes.
Q. You mentioned that in your direct testimony, didn't you? And one of the things in the literature is the fact that people with bronchiolitis obliterans often have a mosaic pattern; isn't that true?
A. During the acute inflammatory phase they do, yes.
Q. And you mentioned I think that it looks in a pattern like ground glass. Do you recall that?
A. That's a term to describe it. You know, you're familiar with what ground glass looks like when you're looking through a glass window. So that's what the radiologists use to describe this.
Q. And the radiologist in this case and Dr. Bainbridge read that CT scan as normal, didn't they, Dr. Parmet?
A. I don't think they read it as normal, but they didn't see the ground glass in there.
Q. Now, as to cause, you're not convinced, are you, Dr. Parmet, that it's just diacetyl alone that causes bronchiolitis obliterans, are you?
A. Well, to complete your statement, bronchiolitis obliterans syndrome.
Q. Sorry.

A. I think that these are due to po -- we know diacetyl can do it. And the pronunciation is both correct. That's the way these chemicals are. But there are several other chemicals that I think are probably contributing as well, and structurally these chemicals are very, very similar. They're first cousins. And I suspect they may be contributing as well. So we're still having little arguments within the medical community. It just needs to be tested further.

Q. That's not totally resolved, though, is it, even today?

A. No. We need to resume testing and try to identify if it's just one chemical or is it a whole group, and I think the majority is tending that the whole group of these flavorings may be potentially causing these.

Q. And you mentioned that some of these chemicals look alike. I know you have some background in chemistry, don't you?

A. Yeah.

Q. And one of those chemicals that looks like diacetyl is acetaldehyde, isn't it?

A. That's correct. If you actually took a diacetyl molecule and snipped it in half, you'd have two acetaldehyde molecules.

Q. And, in fact, Dr. Lockey who people have heard about in this case, jurors have heard about in this case, wrote an article -- or an abstract -- I'm sorry, an abstract in 2002 in which he associated acetaldehyde with bronchiolitis obliterans; isn't that true?

A. That's correct.
Q. Now, you mentioned that NIOSH had been out at the APC plant and at the Jasper plant. When they were at the Jasper plant, do you know whether or not that any of Givaudan's butter-flavoring products were used at that Jasper plant?
A. I don't really recall, sir.
Q. Okay. Talk a little bit about terminology if we could for a second. Is that okay? You mentioned how the terminology has been evolving a bit for this process; right?
A. Yes.
Q. And the term bronchiolitis obliterans syndrome as applied to workers in the microwave popcorn industry actually was first coined by Dr. Talmadge and Dr. King; isn't that right?
A. Well, it's Dr. Talmadge King. Talmadge is his first name, University of San Francisco.
Q. Excuse that. And that was at a conference in 2001, wasn't it, Dr. Parmet?
A. Correct.
Q. And Dr. King who you mentioned is probably one of the world's leading authorities or experts on bronchiolitis; isn't that true?
A. That's correct.
Q. And although Dr. King is credited with first coining the term, you were the one who actually first identified this new syndrome; isn't that correct, Dr. Parmet?

A. I think I pointed to the first outbreak we had. This is collective work. Nobody is really solely responsible. It's a group effort of a team of scientists working together.
Q. And, in fact, scientific knowledge develops like that in bits and pieces, doesn't it, Dr. Parmet?
A. That's correct. Everything has to be integrated to make a whole picture.
MR. PAGLIARO: Could you put up, please, Cort, Plaintiffs' 968?
Q. I'm going to show you your letter that Mr. McClain referred to. It will be up on the screen too for you, Doctor.
MR. PAGLIARO: Page 2, please.
Q. Mr. McClain made reference to this as well, but this is your letter, is it not?
A. Correct.
Q. And you actually wrote one of two -- the signatories to this letter along with Dr. Susanna Von Essen; isn't that right?
A. That's correct.
Q. And when was this published, sir?
A. This was in 2002.
Q. And this was in a journal called --
A. Journal of Occupational and Environmental Medicine.
Q. This is a journal that focuses on occupational and environmental medicine.
A. That's correct.

Q. And you pose a question there because you have a question mark. Rapidly Progressive Fixed Airway Obstructive Disease in Popcorn Workers, a New Occupational Pulmonary Illness? You have a question mark.
A. Correct.
Q. And you make the point in the letter that it is a relatively new illness; isn't that true?
A. That's correct.
Q. And you note your letter on the next page, the characteristics of popcorn packers' lung -- and you don't call it that anymore, do you, Dr. Parmet?
A. No, now that we realize it occurs anyplace where these flavorings can be used.
Q. Seemed to be due to a -- but at that time you were focused on popcorn packers because that was the only product they were making; isn't that right?
A. That's correct. And we were looking at other facilities throughout the country.
Q. Due to an environmental exposure to a workplace toxin that causes a unique and previously unrecognized form of rapidly progressive obstructive lung disease. Do you see that, sir?
A. Yes.
Q. Now, in point of fact, the disease bronchiolitis obliterans, that wasn't an unrecognized disease, was it?
A. No.

Q. And, in fact, if you were to look in 1992 or 1993 or when you did even for causes of bronchiolitis obliterans including in Dr. Talmadge King's book -- you know this book, don't you?
A. Yes.
Q. If you were to look in here back then when you did look, you wouldn't have found diacetyl or butter flavoring as a cause, would you?
A. No, you wouldn't.
Q. Would you have found chlorine as a cause, Doctor?
A. You would have.
Q. You would have found chlorine as a cause, wouldn't you?
A. Yes.
Q. And, in fact, Dr. Talmadge King's book, even today, the current edition, refers to chlorine disinfectants as a cause of -- possible toxic cause of bronchiolitis, doesn't it?
A. If you're talking about chlorine, that's correct.
Q. Doesn't Doctor also r -- does the book also recognize in the context of chlorine bleaching disinfectants as well?
A. If you mishandle the bleaching disinfectant, you can.
Q. Okay. So if you mishandle bleaching and disinfectants, you can have that problem as well?
A. Yeah. If you add a base to them, you can generate chlorine gas.
Q. Okay. Back to your article. I'm sorry.
MR. PAGLIARO: Would you go to the last page, please,

Cort?
Q. On this page you make some observations, don't you, you and Dr. Von Essen? You talk about the fact that diacetyl is a commonly used food flavoring; isn't that true?
A. That's correct.
Q. It also occurs naturally in butter, coffee, and bay oil.
A. That's correct.
Q. So it's something that occurs in natural -- naturally in certain products; isn't that true?
A. That's correct.
Q. And it forms the essential oil of butter and butter flavorings?
A. That's correct.
Q. And has not previously been described as toxic when inhaled. Do you see that?
A. That's correct.
Q. You also make the point that diacetyl is not listed in the most commonly used occupational guide to workplace chemical hazards, the NIOSH pocket guide to chemical hazards.
A. That's correct.
Q. So you did some research before you wrote this. You pulled out the NIOSH guide that existed at the time you wrote this in 2002, and diacetyl you say wasn't listed there; is that correct?
A. That's correct.
Q. What is NIOSH saying about diacetyl now?

A. Do you have the latest?
Q. I do. Well, one of the latest. You know these documents, don't you, the international chemical safety cards?
A. Yes.
Q. This is for diacetyl. Do you see that? And it says November 23, 2007, validated. Do you see that?
A. Yes.
Q. And it says inhalation, and do you see the little asterisk beside to the left of the word inhalation, Dr. Parmet?
A. I can't see if it's an asterisk or not.
Q. It's a little dot. Trust me, it's an asterisk.
A. All right.
Q. Then at the end of the document there's a statement about diacetyl if you go to the last page. This is on that same card, the last page. Workers exposed to this substance in conjunction with other substances have been found to be at an increased risk of bronchiolitis obliterans; correct?
A. Correct.
Q. However, the evidence is inadequate at this time to conclude that it is this specific substance that is responsible. Did I read that correctly?
A. You did.
Q. Health effects of exposure to the substance have not been investigated adequately. Did I read that correctly?
A. Yes.

Q. Environmental effects from this substance have not been investigated adequately either. Did I read that correctly?
A. Correct.
Q. So back to your article, page 3. One thing you do mention, Dr. Parmet, in your article with Dr. Von Essen is common sense, industrial hygiene protections; right?
A. Correct.
Q. Because as an occupational doctor, you know that those things -- even though you don't have all the answers that we're looking for as scientists, those things are what you do to protect the workers that are exposed; correct?
A. I don't have to know what causes a disease to take the handle off the pump.
Q. Yes. And what you were trying to do was suggest take the handle off the pump.
A. That's correct.
MR. PAGLIARO: Would you refer to that, please, Cort? It's right up before the end of the letter, the third page, please.
Q. And some of the things you mention, Doctor -- this is your name as it appears in the article. Good industrial hygiene practices including engineering projects to improve ventilation, provide personal protective equipment, and reduce exposure to the suspect agents should be urged. Is that your language, sir?
A. Yes.

Q. And no one would disagree with that, would they, Dr. Parmet, in your field? That's something people don't disagree about.
A. No.
Q. That if you can fix the problem, you're going to try to fix it even if you can't answer every one of the questions; isn't that true?
A. That's correct. We can prevent this disease.
Q. Now, that letter that you wrote, that was not a full-blown scientific study, was it, Dr. Parmet?
A. That's correct.
Q. And your letter to the editor described what you called at that time an association between lung disease and butter flavoring or diacetyl; isn't that true?
A. That's correct.
Q. What does an association mean, Dr. Parmet, as you used it in that context, sir?
A. It's a statistical statement within what we deal with in public health where the statistics say this exposure gives you this risk of disease. But what we've mentioned before with the Hill criteria, other scientific facts besides the simple statistical association of exposure need to be taken to get more proof. So as the very first step, I wanted to alert people to the association and see if we could gather more information. Was this plant the only plant that was having the problem? In

fact, when we started, we had two plants because Dr. Von Essen had one in Lincoln, Nebraska, so . . .

Q. And that wasn't the same as establishing a firm cause, is it?

A. That's correct.

Q. Now, you mentioned the fact in your letter that you called what you were seeing popcorn packers'/workers' lung; correct?

A. Correct.

Q. And in your 2006 report in this case, you diagnosed Mr. Kuiper with bronchiolitis obliterans syndrome; correct?

A. Correct.

Q. So -- and you told us in the past in 2006 that the syndrome actually goes by a variety of terms, doesn't it, in the literature?

A. That's correct.

Q. And you also have indicated that the name of the disease is transitioning from BOS, bronchiolitis obliterans syndrome, to either flavor-induced bronchiolitis obliterans or diacetyl-induced bronchiolitis obliterans.

A. Correct.

Q. Is there a universally accepted terminology for this process?

A. I don't think we could say that at this point.

Q. And -- talk a little bit more about your report, Doctor, if I can for a minute. You talked about the report from

Dr. Robinson in 1990. There are two other reports that I'd like to ask you about. One is a report by Dr. Farrell. You remember Dr. Farrell.

A. Yes.

Q. This report, Dr. Parmet -- give me a second. These are alphabetical, I promise. This report was in December of '92.

MR. PAGLIARO: Cort, could you pull up 3102-01, please?

Q. Do you see that second report there?

A. Yes.

Q. That's by Dr. Farrell. You know who Dr. Farrell is in this case.

A. Yes.

Q. And he saw Mr. Kuiper in December of 1992.

A. Yes.

Q. He makes a note in his record for Mr. Kuiper, "On exam he doesn't move air well." Do you see that?

A. Yes.

Q. He states he tried to use his inhalers, but they caused him to cough so much that he quit using them. Do you see that?

A. Yes.

Q. So again, there's this concept of him coughing that's repeated here; isn't that true?

A. Coughing on inhalers? Yeah.

Q. Well, coughing. He states that he's had this problem for

maybe three years, ever since he has worked in this area. Do you see that?
A. Yes.
Q. And then Dr. Farrell makes a note, "However, I see back in August of '88 he had some symptoms similar to this and was seen by Dr. Fell"; is that correct?
A. Yes.
Q. And that's the report you did reference in your report; isn't that true?
A. That's correct.
Q. Now, have you seen this report before?
A. Yes, I think I have.
Q. You have. But it's not included in your written report.
A. Because it came in later.
Q. Okay. But it's something you have seen.
A. Yes.
Q. Do you see later on down there it says, "Does complain of a lot of shortness of breath especially with exertion"?
A. Yes.
Q. And then later on it says, "In listening to him, he moves air. He is fairly clear. He doesn't move a lot of air." Do you see that?
A. Yes.
Q. And again, Dr. Farrell gives him Atrovent inhaler and Medrol Dosepak?

A. Dosepak.
Q. Dosepak. Those are steroids?
A. Yes. The Medrol is. The Atrovent's a bronchodilator.
Q. I have one other report I want to ask you about, Dr. Farrell. This is dated 3-3-95.
MR. PAGLIARO: It's 3186, Cort.
MR. MCCLAIN: You called him Dr. Farrell.
BY MR. PAGLIARO:
Q. Oh, I'm sorry.
A. I know who he was talking to.
Q. Thank you. I'm sorry, Dr. Parmet. Too many doctors.
This is a note by Dr. Kessler -- do you see that -- Alan Kessler?
A. Yes.
Q. And again, this is Mr. Kuiper. It's March of '95. And I believe Mr. Kuiper told you this, but I wonder if you saw this particular record. Dr. Farrell wrote a note to his superior, Mr. Kuiper's superior, telling him he needs to get out of the situation that he is in as soon as possible preferably not to have to go back to work there at all, but he is required to train a person. Do you see that?
A. Yes.
Q. So Mr. Kuiper and Dr. Farrell are talking at that time about the fact that something in his work situation is causing him distress to the point where Dr. Farrell is writing to

Mr. Kuiper's superior saying get him out of that situation; is that correct?
A. That's correct.
Q. That's how you read that. One more record I'd like to look at with you if I could. It's 3225, Dr. Parmet. And again, I don't think this is on your report, but I'm going to ask you if you've seen it. This is a record of a visit to a cardiovascular practice. Do you see that?
A. Yeah.
Q. Cardiovascular Associates. That's to do with your heart, and your vascular means your blood vessels; right?
A. Correct.
Q. And again, the name of this patient is Ronald Kuiper. And he was referred by Dr. Farrell and seen by a cardiologist, Dr. Zuehlke. Do you see that?
A. Yes.
Q. In that first paragraph, Dr. Parmet, Dr. Zuehlke writes, "He works for American Pop Corn." This is -- I'm sorry, the date of this, could you tell me the date?
A. 7-11 of '96.
Q. July 11 of '96. Did I read that right?
A. Correct.
Q. And so on July 11 of 1996, Dr. Zuehlke wrote, "He works for American Pop Corn, and there has been concern that he may have had exposures related to his employment." Do you see that?

A. Yes.
Q. He has not had -- what's that word? Orthopnea? What does that mean?
A. You said that right.
Q. Orthopnea and dyspnea. I know dyspnea means shortness of breath. But what's orthopnea mean?
A. It means you get short of breath when you change position such as lying down to standing up.
Q. I just learned that. I didn't know that. Or --
A. They didn't teach you that at law school?
Q. No, sir, unfortunately. Paroxymal nocturnal dyspnea means -- something to do with having shortness of breath when you sleep; right?
A. Yeah, it's sudden paroxysms of difficulty breathing.
Q. During the night, nocturnal.
A. Correct.
Q. But his symptoms stretch back to at least 1988. Did you see that?
A. Yes.
Q. Did you see this report before, sir?
A. I have not.
Q. I want to ask you a little bit about Mr. Kuiper's hospitalization and treatment for his stroke.
MR. PAGLIARO: Could you pull up 3471?
Q. You refer to the fact that he had a stroke in 2001, didn't

you, Doctor?
A. Correct.
Q. This is a report of his hospitalization, St. Luke's Regional Medical Center. Do you see that?
A. Yes.
Q. And the admission date says 3-17, 2001, which is about the time he had his stroke; isn't that right?
A. Yes.
Q. And this is a note by Dr. Farrell, dictated by Dr. Farrell. See that at the top?
A. Yes.
Q. Okay. Now, Mr. Kuiper was admitted to the hospital at that time with a number of symptoms, wasn't he, Dr. Parmet?
A. Yes.
Q. And one of the symptoms that Dr. Farrell notes in this note is the fact that he has hypertension; isn't that true?
A. Correct.
Q. He also talks about a new onset atrial fibrillation. Do you see that?
A. Yes.
Q. Now, that's a heart condition, isn't it?
A. Yes.
Q. Is that like a heart murmur, Dr. Parmet?
A. No.
Q. Does it cause blood clots to form at times?

A. They can complicate it.
Q. And blood clots certainly can cause a stroke; isn't that true?
A. That's correct.
Q. Now, here there's a discharge diagnosis that talks about the stroke. It says small cerebro -- cerebrovascular. Did I get that right?
A. Correct.
Q. Cerebrovascular, that means the arteries or the veins in his cerebellum, doesn't it?
A. No, it's arteries in the brain.
Q. Okay. Arteries in his brain.
A. It happens to be in the cerebellum.
Q. But it was in his cerebellum, wasn't it?
A. That's correct.
Q. It says a small cerebrovascular accident in the right medial cerebellum region of the dentate nucleus?
A. Correct.
Q. And that's describing the stroke; isn't that true?
A. Yes.
Q. And then he goes on to say, "Probable embolic phenomenon from atrial fibrillation." What does he mean by that, Doctor?
A. They're speculating that a clot formed in the atrium of his heart because it was not contracting properly, and so blood can stall out there and clot, and then the clot can break loose,

travel into the left -- through the left ventricle out into the aorta and then get stuck somewhere, in this case the brain.

Q. Now --

MR. PAGLIARO: Thank you very much, Cort.

Q. You talked about the fact that the terminology is evolving for the conditions. I want to ask you some questions now transitioning to what you said about dose response if I could. You testified about that during your direct examination. Do you recall that?

A. Yes.

Q. And with regard to diacetyl, you mentioned already that diacetyl was naturally occurring part of certain products like coffee and bay oil and butter and things like that; isn't that right, sir?

A. Yes.

Q. And you've indicated that there is a threshold or a safe level of exposure to diacetyl that doesn't cause lung disease; isn't that true?

A. There must be.

Q. Yeah. And you know that because the fact is that all of us at times may be exposed to diacetyl or even in the plants people are exposed to low amounts, and those people don't get disease; is that true?

A. That's correct.

Q. And so even people in the plant that have -- plants that

make popcorn products that have some level of exposure, they're not all getting disease, are they?
A. That's correct.
Q. So that alerts you to the facts as an occupational doctor that there's what's called a threshold below which disease isn't occurring, a threshold of exposure.
A. Well, there's thresholds of exposure, but there's also a threshold of disease, and that's a toxicology issue.
Q. But the fact is there is a safe level. We just don't know exactly what it is right now.
A. That's correct.
Q. And so OSHA, for example, sets what are called permissible exposure limits; right, Doctor?
A. Correct, correct.
Q. As an occupational physician, you know that OSHA will publish for certain chemicals what's called a PEL, permissible exposure limit, and that's a limit below which an employer cannot be cited for violating the standard; isn't that right? Did I make that --
A. For standards, yes.
Q. It's a standard.
A. Yes.
Q. So if you keep below that standard, that PEL, OSHA's not going to come in and say you did something wrong; we're citing you.

A. That's correct.
Q. Now, for diacetyl, is there a PEL set by OSHA?
A. No.
Q. For diacetyl has NIOSH recommended a PEL for OSHA?
A. There are several proposals out and a notice of proposed rule -- rule making has come out in the last month.
Q. Okay. And has -- there's also something called the American Conference of Governmental Industrial Hygienists, ACGLH (sic); right?
A. Correct.
Q. And they set not standards because they're not legally enforceable, but they set what are called threshold limit values, don't they?
A. Correct.
Q. They're called TLVs; right?
A. Correct.
Q. And has the ACGIH, the Conference of -- American Conference of Governmental Industrial Hygienists, have they set a TLV for diacetyl?
A. I don't know if they have.
Q. Have either OSHA or ACGIH set some sort of number for butter flavoring?
A. Not that I'm aware of.
Q. Okay. Now, in your report in this case you cite to the article and you talked about the article that Dr. Kreiss,

et al., Dr. Kreiss and others, wrote in 2002; is that correct?
A. Correct.
Q. And this article that you were directed to --
MR. PAGLIARO: Could you put up, please, 3541?
Q. This was published in the New England Journal of Medicine; is that right?
A. That's correct.
Q. And the date of this was 2002?
A. Correct.
Q. And you talked about this at length. Let me direct you to the bottom part of the first page, Dr. Parmet, if I can. This article is reflective of the work NIOSH and you but certainly NIOSH is talking about the work that it did in the Jasper plant; isn't that right?
A. That's correct.
Q. And in the Jasper plant as in the APC plant in Sioux City, NIOSH did something called air sampling.
A. Correct.
Q. And what they do, it's just like my microphone is up here. They put a little -- they put a little pump in the breathing zone of the person who's actually working around the material; right?
A. That's correct. That's what I described earlier.
Q. And they measure the air, and then they look at through a filter or some other means what the person's breathing besides

the air around them if there's any chemicals or dust.
A. That's correct.
Q. And they have a way scientifically to separate those things out from the air; isn't that right?
A. That's correct.
Q. And in this case when they went to the Jasper plant, they did air sampling, a variety of air samples, didn't they?
A. That's correct.
Q. They did what were called personal samples?
A. Yes.
Q. Did they do what are called ambient samples?
A. Yes.
Q. And ambient samples as opposed to personal samples are taken in a room; right?
A. Yes.
Q. Personal samples focus on what's in the -- supposed to focus on what's in the breathing zone of the worker who's actually doing the work.
A. That's correct.
Q. It's supposed to capture what he's breathing into his own body; isn't that correct?
A. That's correct.
Q. And when they did the air sampling in this case, they take it back to a laboratory, and they analyze what they found in the samples; right?

A. That's correct.
Q. And this talks about the analysis of those air samplings, and it says, "Analysis of air samplings from the mixing room" -- and that's in Jasper, not in APC; right?
A. That's correct.
Q. -- "identified more than 100 volatile organic compounds." Do you see that?
A. That's correct.
Q. And it says there were no known occupational causes of bronchiolitis obliterans identified among those compounds or in the plant at large.
A. That's correct.
Q. And then they talk, of course, about diacetyl as a predominant compound isolated from the samples; right?
A. That's correct.
Q. But they make the point that diacetyl was not the only volatile organic compound in that atmosphere; isn't that true?
A. That's correct.
Q. You mentioned the fact that you looked at the dust from the corn in that plant yourself. You identified that potentially as being possibly an issue; is that correct?
A. That's correct.
MR. PAGLIARO: Could you show this, Cort, please, at the top? It's the same article, page 3.
Q. The majority of the participants, 57 percent, reported

having had exposures outside the popcorn plant to other possible -- excuse me, to other possible causes of occupational lung disease. The leading sources of exposure were farming, 40 percent; grain dust, 32 percent; irritant gases, 14 percent; and nitrogen oxides, 8 percent. Do you see that?

A. Yes.

Q. And one of the things NIOSH looked at and asked about was potential exposure in a farming context; is that true?

A. That's correct.

Q. And do you know, sir, whether or not -- let me ask you this question. What's the American Thoracic Society? Have you heard of that organization?

A. I've heard of them.

Q. The ATS?

A. Yes.

Q. And they're certainly an authoritative body, are they not?

A. They're a professional medical group.

Q. And they deal with a lot of breathing problems, lung issues, pulmonary issues, lung diseases?

A. That's correct.

Q. That's what they're focused on, isn't it? Do you know, sir, whether or not the ATS has looked at farming exposures as a potential cause of obstructive lung disease?

A. I'm sure they have.

Q. So the fact that NIOSH asked about farming exposures

indicate at least there was some interest in identifying other potential causes for lung problems, and they identified farming as being a potential cause; is that true?
A. That's correct.
Q. Now, Dr. Kreiss also did not conclude in that 2002 article that diacetyl was the cause of the workers' lung problems; isn't that true?
A. That's correct.
Q. In fact, she speculated at the time because all the evidence wasn't in as you indicated that diacetyl might be what's called a marker; is that true?
A. That's correct.
Q. And explain what a marker is, Dr. Parmet, for the jury.
A. A marker may just be something that's there at the same time as the actual cause. So it might not be the actual cause itself which is one reason to isolate it and test lab animals with diacetyl alone.
Q. Fair enough. And Dr. Kreiss also concluded that many questions remain about the specific agents involved and about safe and unsafe level of exposures; isn't that true?
A. That's correct.
Q. And there was a later publication by Dr. Kanwal, K-a-n-w-a-l; isn't that correct?
A. Kanwal.
Q. Kanwal.

A. Rich Kanwal.
Q. He's at NIOSH too, isn't he, Doctor?
A. Yes.
Q. Yeah. And he published in the same journal you wrote your letter, JOEM, didn't he?
A. Correct.
Q. In 2006.
A. Correct.
Q. And he acknowledged that there were many chemicals other than diacetyl that might be causing the symptoms, did he not?
A. Well, we're speculating what else was there, yes.
Q. And he was looking at some other potential causes besides diacetyl because even in 2006 not sure yet definitively that that's the cause.
A. That's correct.
Q. And, in fact, what Dr. Kanwal --
A. Kanwal.
Q. Thank you. I've been mispronouncing it. Thank you.
What Dr. Kanwal said at the time was there's so little known about what's going on that he really was looking at butter flavorings rather than just focusing on diacetyl; is that right?
A. That's correct.
Q. I'm going to ask you a few questions now, Dr. Parmet, about the animal studies as part of that analysis that we looked at before in the second Kreiss article.

A. Yes.
Q. You mentioned animal studies. And you talked in your 2002 JOEM letter about animal studies, didn't you?
A. Yes.
Q. You did. You addressed that.
A. Yes.
Q. And the animal studies you referred to in your letter to the editor were those done by a physician -- excuse me, a scientist named Dr. Ann Hubbs.
A. She's a veterinarian.
Q. She's certainly a scientist, though, isn't she?
A. Yes.
Q. And eventually Dr. Hubbs published the results from two different animal studies, didn't she?
A. I think she's got a third one out as well.
Q. She does. But initially she had one in 2002, is that right, or is there --
A. It's around then, yes.
Q. And then a second one that was published a couple years later?
A. Yes.
Q. In your letter to the editor, you stated that the rats in Dr. Hubbs' studies were exposed to flavorings for 24 hours; is that correct?
A. I was writing off my notes, and that wasn't actually

correct.
Q. That wasn't correct, was it? And in both studies by Dr. Hubbs, the rats that were used by her were actually exposed for only six hours; isn't that true?
A. That's correct.
Q. And you also indicated in your letter to the editor at that time that Dr. Hubbs found, quote, severe upper and lower airway changes in the rats; isn't that correct?
A. That's correct.
Q. Is that statement correct?
A. Well, it is now in the third study.
Q. But at the time you wrote it, it wasn't correct; is that true?
A. That's correct.
Q. And, in fact, in the first Hubbs study, the upper airways, not the lower airways of the rats were affected by the butter flavoring; isn't that correct?
A. That's correct.
Q. And again, in the second Hubbs study which looked just at diacetyl, she repeated the same thing, and it was diacetyl alone, but the effect was again just the upper airways; is that correct?
A. That's correct.
Q. So again, this is an evolving process, isn't it?
A. That's correct.

Q. Now, Dr. Parmet, you talked about NIOSH. Have you tried to talk to or contact NIOSH recently?
A. Not recently, but I believe I could do that now.
Q. I'm sorry?
A. I think I could do that now.
Q. Think you could do that? But you indicated earlier that you had tried to contact NIOSH and they weren't responsive to you. Is that still true?
A. They were turned off for a while. They were not allowed to talk to anybody, so that's correct.
Q. All right. And your phone calls and your e-mails weren't being returned; is that correct?
A. That's correct. Not just mine.

MR. PAGLIARO: Okay. Thanks, Dr. Parmet.

I have nothing further, Your Honor. Thank you.

THE COURT: Thank you, Mr. Pagliaro.

Mr. McClain, redirect?

MR. MCCLAIN: Yes, sir.

REDIRECT EXAMINATION

BY MR. MCCLAIN:

Q. Let's take -- let's take the last point first. During the Bush administration, was there a kibosh put on research regarding diacetyl and worker health?

MR. PAGLIARO: Objection to the form of the question.

THE COURT: Overruled.

A. There was a cessation of research and communication in this area. There was a cessation of regulation, and I believe during the last eight years there was only one chemical regulation issued, and that was at a court's order, not on OSHA's part.
Q. And now you say that you believe that NIOSH would respond to you. Kay Kreiss is now in charge at NIOSH.
A. That's correct.
Q. And she wasn't in charge during the Bush administration.
A. No, sir. There was a notice of proposed rule making issued on January 21 for regulating these chemicals.
Q. Now, let's talk about this whole -- Mr. Pagliaro spent a good bit of time kind of illustrating the point that you were trying to make about the Jasper workers about how much confusion there was around Mr. Kuiper's situation early on. But just tell the jury, is it unusual for a worker to believe that the symptoms they're suffering from, exposure to diacetyl, really might have started before?
A. Workers get confused at the exact time something starts. They may confuse irritation from the dust with direct inflammation from the chemicals. So they're not real sure.
Q. Is it at all inconsistent that Mr. Kuiper thought he was receiving irritation from corn dust that was intermittent and would come and go with the same symptoms he later obtained which were permanent caused by the butter flavor or diacetyl?
A. I think that's very consistent with what he actually did.

Q. I mean, in fact, it's biologically very possible that he was irritated by the corn dust and subsequently permanently injured by the butter flavor.

MR. PAGLIARO: Objection. Leading.

THE COURT: Sustained.

BY MR. MCCLAIN:

Q. You tell me. What -- you put that together for me or tell the jury what you think about that whole issue.

A. I think as I look at that, he's very typical both of his experience, other workers' experiences that you get around a lot of dust, it gets in your nose, you blow it out, you've got this cough, and you're blowing out snot all the time and coughing it up. That comes and goes. And if he switched his job from working with the raw corn and the raw materials into the mixing room where now he gets exposed to the chemical and the symptoms are not unique, coughing and having difficulty breathing is not unique to one or the other, but the permanent changes are. And that's very typical of the butter-flavoring exposure and working as a mixer.

Q. As an example, could he go on a treadmill for ten minutes today?

A. No.

Q. And he did that after he had the dust exposure?

A. He subsequently had treadmills, and he couldn't get more than about four minutes when it's just at its lowest level.

Q. Now, let's talk about another thing.

MR. MCCLAIN: Scott -- Steve, is there that stipulation about the product use? I meant to ask you about that. Is there -- can you show the jury that?

Q. While he's looking for that, I just want to ask a question. In the report he mentioned to you that the thing -- that the kind of butter flavor that he avoided was Flavors of North America. He refused to breathe that anywhere around; is that right?

A. That's what he recalled was the worst for him.

Q. But he did remember breathing the Givaudan flavoring because it didn't seem to bother him, right, the powder?

A. Yeah, he recalled a powder by Fries & Fries that didn't bother him as much.

Q. And they've stipulated that that is the Givaudan powder. But tell the jury about that. Breathing the powder in even though it's not irritating initially, what happens when you breathe that powder in in terms of its biological reaction when it hits your lungs?

A. Well, the powder is really the chemical coated by starch. So the minute it gets moist, the starch breaks down, and the chemical's released which is a nice design that they built into the product. But once the starch breaks down, the chemical's released, and it's just like breathing the vapors.

Q. So in other words, coating it in this starch allows it to

get into the lungs where when it hits the moist lungs it releases.
A. That's correct but you --
Q. And so on its surface, on its surface while it would appear that the Givaudan powder was less reactive, you tell us the biological effect of that powder that he breathed in.
A. You would get the same chemical effect. You wouldn't smell something if it comes in in an inert matter because you only smell up in your nose. So if you breathe it in, it goes past your nose and then is released in your lungs. You can't smell it there.
Q. Now, you talked about ruling all these things out with Mr. Pagliaro. If it was corn dust and reactive airway disease as he said, the allergy panel would have been reactive; is that correct?
A. Would have been there, and he would have responded earlier to the bronchodilators. Everybody would have clearly had him with asthma and had him well controlled. He would have responded to the steroids, all the things we do for asthma.
Q. And it wasn't smoking because he never smoked.
A. Correct.
Q. And it wasn't congenital.
A. Correct.
Q. And it wasn't malathion.
A. Correct.

Q. And it wasn't other farm work because he was fine when he came off the farm.
A. That's correct.
Q. In fact, he did the ten-hour treadmill test after -- or the ten-minute treadmill test.
A. Ten minutes.
Q. Ten hour, that would be pretty good. Ten-minute treadmill test after he came off the farm; is that fair?
A. That's correct.
Q. All right. Now, by the way -- and this is not to disparage Dr. Bainbridge at all, but as far as you know, is Dr. Bainbridge an expert in popcorn lung or bronchiolitis obliterans? Was he ever invited to any of these conferences you talked about?
A. I personally don't know him, so I assume he's just a well-qualified pulmonologist.
Q. And frequently as you mentioned, well-qualified pulmonologists at Mayo and National Jewish miss this disease; is that right?
A. That's correct.
Q. But you've seen a recent record of Dr. Bainbridge in which he lays out that currently popcorn lung's still part of his differential; is that right?
MR. MCCLAIN: This is 2184, Scott.
Q. You've seen this record, haven't you?
A. Yes, sir.

Q. He has a history of exposure to diacetyl in the mixing room of microwave popcorn, and consequently, there are issues about the possibility of having microwave popcorn lung; right?
A. Correct. And there's another term for it.
Q. So he's on the right track. He's on the right track. Whether he's convinced or not, he hasn't ruled that out.
A. That's correct. He's not at that 95 percent sure level.
Q. Now, he also mentioned to you about this mosaic pattern, and you told us that unless you did the expiratory CT you wouldn't expect to find it and he only did inspiratory breathing; is that correct?
A. Well, what we would find would be called air trapping on the expiratory because the lung looks okay when it's fully expanded, but when you try to breathe out, the affected areas are stiff and scarred, and they don't collapse. Normally like if you think of a sponge, a wet sponge collapses nicely. The lungs are very much like that. The mosaic pattern is a pattern of inflammation. And when the inflammation process is stopped, that tends to go away. And I've seen repeatedly people with this problem, and two, three years later that pattern disappears, and their CT scan becomes normal.
Q. And when were these CT scans taken of Mr. Kuiper? When he was being exposed or afterwards?
A. No, many years later.
Q. So you wouldn't expect to see it anyway.

A. No.
Q. Now, then he talked about diacetyl and seemed to suggest that there was some doubts surrounding whether diacetyl caused this disease. Is that true, Doctor?
A. I don't think there's any doubt that it causes the disease. The question is do other chemicals contribute as well.
Q. That's the uncertainty, whether other things also cause.
A. That's part of the uncertainty, and the other uncertainty is what's a safe level? We need to know that because we need to protect workers.
Q. Now, he showed you a 2002 article by Dr. Kreiss. This -- 2009, just this year, Exhibit 2140, what does Dr. Kreiss say about whether it will cause? Diacetyl, a major component of butter flavor, causes BO based on cases of BO among chemical workers who made diacetyl and animal studies that showed respiratory effects from diacetyl alone. Doctor, is that a true statement as of today?
A. Yes.
Q. And to the extent that there was ever any doubt about what component, was it always from the time that the article was published in 2002 known that it was butter flavor in some fashion? Whether it was diacetyl or some other component, it was the butter flavor causing the disease?
A. Yeah, we knew it was the butter flavor. Whether the diacetyl was the marker or the actual component or one of the

components, we were not sure. And at this point it's still -- some of that scientific uncertainty still exists. And unfortunately, some of the animals we've used are not the perfect model for this.

Q. And so back in '96 -- let's just take it back because he asked you about that when there was some question about his employment -- was there any scientific evidence at that point in time that was in the published literature that butter flavor would cause the kind of symptoms that he had?

A. No.

Q. So there's no way for him to have known that.

A. No, or any other -- any of his doctors.

MR. MCCLAIN: Your Honor, that's all the questions I have.

THE COURT: Okay. Thank you.

Members of the jury, it's about 4 minutes to 12. So we'll be in recess until 12:25. Remember to keep an open mind until you've heard all of the evidence in the case, had the opportunity to hear the closing arguments of the lawyers, and, most importantly, go back and review the evidence and discuss this case among yourselves. Thank you. We'll see you back here at 12:25.

(The jury exited the courtroom.)

THE COURT: Mr. McClain, have you disclosed to opposing counsel what your plan is for the next two hours?

MR. MCCLAIN: At least Dr. Higley. I've gotta check and see if he can go on and off for 15 minutes, but that would be it.

THE COURT: Okay. Thank you. Anything else we need to take up?

MR. PAGLIARO: No, sir.

THE COURT: Okay. Thanks.

(Recess at 11:56 a.m.)

THE COURT: Mr. McClain, ready to proceed?

MR. MCCLAIN: We're -- Mr. Kuiper is coming. Yes, I am.

THE COURT: And how are you planning on proceeding with his testimony in terms of the physical location of Mr. Kuiper?

MR. MCCLAIN: I think it -- Glenn, did you have it set up how you're going -- we're going to get him into the seat, Your Honor.

THE COURT: Okay. Why don't we have the jury brought in and we'll swear you in. You can stop anywhere you like. Let's have the jury brought in.

(The jury entered the courtroom.)

THE COURT: Thank you. Please be seated.

Mr. Kuiper, would you raise your right hand, please.

RONALD KUIPER, PLAINTIFFS' WITNESS, SWORN

THE COURT: Okay. Thank you.

MR. MCCLAIN: Your Honor, I know it's irregular, but could Miss Kuiper sit --

THE COURT: I was just going to ask if she preferred to do that. That would be fine.

Would you tell us your full name, please.

THE WITNESS: Ronald Kuiper.

THE COURT: Thank you.

Mr. McClain?

MR. MCCLAIN: Thank you, Your Honor.

DIRECT EXAMINATION

BY MR. MCCLAIN:

Q. Mr. Kuiper, we've been talking about you now for over a week, and this is the first time you've had a chance to talk to us.

MR. MCCLAIN: And, Your Honor, could you explain how we're going to do this maybe so that --

THE COURT: Oh, yes. We're going to -- by agreement of everyone, we're going to take Mr. Kuiper's testimony in about 15- or 20-minute intervals depending upon how he's doing. And so it's not going to come in all at one time just so that he doesn't tax himself too much. So we're going to intersperse his testimony with that of other witnesses.

MR. MCCLAIN: Thank you.

THE COURT: And, Mr. McClain, I'm just going to leave it in your discretion and Mr. Kuiper when you think we've had

enough.

MR. MCCLAIN: Okay. Thank you, Your Honor.

THE COURT: Thank you.

BY MR. MCCLAIN:

Q. Mr. Kuiper, how old are you now?

A. I'm 69.

Q. And when were you born?

A. In 2 -- 1-2 of 1940.

Q. Where'd you grow up?

A. In -- about 125 miles north of here in Pipestone, Minnesota.

Q. Now, I have a picture of your family. How big was it?

A. Well, I had -- when I was -- we had -- my first wife, we had three children. We had two girls and one boy.

Q. Okay. Well, we're going to talk about your first wife, but how big was your family that you were born into?

A. Oh, I'm sorry. I'm the youngest of 12.

Q. And you were a big farming family from Minnesota?

A. Yes.

Q. You all lived there on the farm and worked on the farm?

A. Yes, as long as we were all home yet.

Q. And this is Exhibit 2189.

MR. MCCLAIN: Scott, will you put that up, please?

Q. This is a picture of your family? You can just look at the monitor right in front of you.

A. Yes, yes.
Q. And you're the youngest?
A. Yes.
Q. Where are you in the picture, Ron?
A. Way down in the -- in my left-hand -- my right-hand corner.
Q. You're this fellow right here; is that right?
A. That's right. That's my ornery face.
Q. And who's this fellow over here in the other corner?
A. Over here?
Q. Yes.
A. That's my brother Glenn.
Q. And is Glenn here in the courtroom with us?
A. Yes, Glenn is here with me.
Q. And how much age separates you and Glenn?
A. Just about two m -- two years.
Q. Two years. So in a family this size, you two were buddies.
A. Well, sometimes.
Q. You were each other's playmates.
A. Yeah, right.
Q. And I guess Glenn is still here helping you today.
A. Yes.
Q. Now, just so that we're clear, who's older? You or Glenn?
A. Glenn's older than I am.
Q. Does Glenn have any of these health problems that you have?
A. No.

Q. Doesn't seem quite fair, does it?
A. That's right.
Q. You're the younger of the two.
A. Yes.
Q. Now, when you were growing up on the farm, did you have any electricity?
A. Well, not until the late -- in the '50s.
Q. What about running water?
A. No, we didn't have that -- didn't ever have that. Just gotta grab a bucket and run with it.
Q. And so you pumped water out on the farm from a well?
A. Yes.
Q. Was the farm self-sufficient? That is, did all of you work on the farm?
A. No, we didn't. Some of them were working a ways from the -- my oldest brother worked in town, drove a propane gas truck to farmers and delivered propane gas.
Q. So your older brothers got jobs away from the farm in town, in Pipestone, so who was left to do chores around the farm?
A. Well, it got to be that it was basically our -- the three -- my brother, him, and it finally ended up that I was there by myself.
Q. Okay. So -- but all of you did work on the farm, and you worked on the farm --
A. Yes.

Q. -- pretty much the whole time you were growing up?
A. Yes.
Q. Did you do things like milk the cows and --
A. Yes, yes.
Q. Normal farm work.
A. Yep.
Q. Baled hay?
A. Yes.
Q. Milked the cows?
A. Yes.
Q. Now, you mentioned the fact that you were married once before and you're widowed from your first wife; is that right?
A. Yes.
Q. When did you get married to your first wife, Ron?
A. In sixty -- I was 21.
Q. So that would have been 1961 I guess, huh?
A. Yes, yes.
Q. Or about, '61, maybe '62 I guess. There's a picture that we have of your first wife and your family. Now, you had three children, you and your wife did?
A. Yes.
Q. And what was her name?
A. Audrey.
Q. And what are your children's names?
A. The one standing behind us is -- that's Vickie.

Q. Vickie?
A. Uh-huh.
Q. Okay. And who's on your lap?
A. My youngest daughter Nancy.
Q. Nancy? And what's this son's name?
A. His name was Danny. I lost him in electric fire.
Q. And you -- I know this is difficult. You lost your first wife too.
A. Uh-huh.
Q. When did she die?
A. '82.
Q. In 1982. Now, when you were -- when you had the young family, what kind of jobs did you have?
A. Well, as a family I was there on the farm. I just took care of my stock, my dairy cattle, and I spent some time working for the neighbor.
Q. So you had your own farm up until about what year?
A. Well, it wasn't my farm. It was just -- we were just renting it.
Q. Okay. So you worked until what? About 1968?
A. Yes, to '68. I moved to Sioux City.
Q. Okay. So through '68 you were a farmer.
A. Yes.
Q. When these kids were just real little.
A. Yes.

Q. And then moved to Sioux City.
A. That's right.
Q. Have you lived here ever since?
A. Yes.
Q. When you moved here in '68, what did you do for a job?
A. I went to work for the Terrace Park Dairy out of Sioux Falls.
Q. And so the dairy that you worked for, were you a milkman at that time?
A. I was delivering milk door to door.
Q. That's a bygone era.
A. Yes.
Q. Was that -- that was kind of at the end of that era, wasn't it?
A. That's right.
Q. Home delivery?
A. Right.
Q. So you were one of the last old-time milkmen.
A. That's right.
Q. I've often -- I've often wished for an old-time milkman when they send me out to the convenience store. Seemed like a much more humane process. But that's what you did for how long?
A. For about 11 years.
Q. Okay. So that would take us about to 1979 or thereabouts?
A. Yes, yes. They quit delivering door to door in '79.

Q. So they quit in this area in 1979 delivering, so that was pretty late in time really I guess from other parts of the country.
A. Uh-huh.
Q. But what did you do after that?
A. Well, I did some odd jobs that I did at that time, and then I met the -- I knew the one fella that worked at Jolly Time, American Pop Corn. And I asked him whether they were going to be hiring because I was going to be laid off in September. And he says, "Yeah, we're going to be hiring." He said, "When you get done there at the restaurant," he says, "come on over and we'll put you on."
Q. Okay. Now, did that -- was there a time you worked at Orkin in between the time you left the milk route and --
A. About two years.
Q. So you worked for Orkin for a couple years.
A. Yes.
Q. And then you went to work at Jolly Time.
A. Yes.
Q. Now, at about the time you went to work at Orkin, did your first wife Audrey die?
A. Yeah, it was just after that. Would be in '82. I think I was still working there. No, I wasn't -- I think I was with -- yeah, I guess I was. I was still with -- when she was alive, I was still working there, at Orkin.

Q. So at that point in time you were working for Orkin, and Audrey passed away.
A. Yes.
Q. And then you were watching the kids by yourself I guess.
A. Well, my two -- my two -- I should say --
Q. Your two surviving children.
A. Yeah, they were getting up in years, and they were pretty well able to take care of themselves.
Q. Now, when did you meet Connie?
A. I met Connie in about '84, '83, '84.
Q. And did -- I know you got married. When did you get married?
A. We got married on -- in the -- '84, the 25th of February.
Q. You're better at remembering that date than I am, let me tell you. That's pretty good.
MR. MCCLAIN: 1728, would you show the picture?
Q. Now, is this the way that you looked when you and Connie got married?
A. Yeah, that's me.
Q. And here's the two kids at that point in time. And can you tell us, at that point in time, Ron, you'd worked on the farm, and you'd already worked at Orkin. Were you having any kind of health problems at that point in time?
A. No, I was not.
Q. And I guess '84 you would have been 44.

A. Uh-huh.
Q. Approximately.
A. Uh-huh.
Q. And, you know, at that point in time were you a healthy guy?
A. Oh, yeah, yeah.
Q. Could you work all day?
A. Oh, yes.
Q. Ever short of breath?
A. Never short of breath.
Q. Ever have any concern that you'd end up the way you are today back then?
A. No, I didn't. I had no idea.
Q. Now, when you and Connie got together in '84, did you two have any children together?
A. She had one child from her first marriage. She lost her husband too in the late -- in the early '80s, yeah. So I had known her for -- since about 1980.
Q. How did you know her?
A. Well, we met at our Kingdom Hall of Jehovah Witnesses.
Q. At your church.
A. At the church, yeah.
Q. And you and she married in '84.
A. Uh-huh, yes.
Q. And when did you have a child together?

A. Well, in '85, in March of -- 04, '85.
Q. Let's show a picture -- this is your son Kevin, 1729.
A. Yes.
Q. And so he was born in '85. This looks to me like maybe he was 18 months or so there or maybe --
A. Yeah, about that.
Q. About 18 months?
A. Yeah.
Q. So this would have been like '86, '87; right?
A. Yes, yes.
Q. So by this time -- by this time were you working at Jolly Time?
A. Yes, I started in '85 at Jolly Time.
Q. Okay. And at this point in time were you still healthy?
A. Oh, yes, yeah.
Q. And could you chase Kevin around?
A. Yes, yeah, yeah.
Q. And keep up with him wherever he wanted to go?
A. Yeah.
Q. Well, Ron, did that condition change after this point in time?
A. Yeah, it sure has, yeah.
Q. And we're going to tell the jury about that and how that came about, but I think that's -- is this a good stopping point for today?

A. Okay. Sounds good.
Q. Okay. All right.
MR. MCCLAIN: Thank you, Your Honor. This would be a good point.
THE COURT: Okay. Thank you.
Why doesn't everybody take a stretch break for a second. Thank you.
Okay. Why doesn't everybody be seated. And Mr. McClain?
MR. MCCLAIN: We will resume with Dr. Nancy Higley.
THE COURT: Okay. Thank you.
(Continuation of videotaped deposition excerpts of Nancy Higley taken April 6, 2006, were played in open court.)
THE COURT: Would now be a good time to take a stretch break?
MR. MCCLAIN: Yes, Your Honor, it would.
THE COURT: Thank you.
Thank you. Please be seated.
(Continuation of videotaped deposition.)
MR. MCCLAIN: Your Honor, there's about 15 more minutes of this. What do you want us to do?
THE COURT: I'd like you to stop now.
MR. MCCLAIN: Okay.
THE COURT: Thanks.
MR. MCCLAIN: You're welcome.

THE COURT: Members of the jury, that will conclude the evidence and testimony for today. I'm sounding like a broken record, but please remember to keep an open mind until you've heard all the evidence in the case. And we'll see you tomorrow morning at 8:30. Just a reminder, we're going to go tomorrow and then Wednesday. We'll have Thursday and Friday off, and then I assume this case will go to the jury sometime next week, but I'll discuss that with the lawyers and have a better idea for you at the end of the day tomorrow. Thank you very much.

(The jury exited the courtroom.)

THE COURT: Please be seated.

When are you likely to rest your case, Mr. McClain? Do you have some sense?

MR. MCCLAIN: I think we'll be very close at the end of the day Wednesday.

THE COURT: Okay. And how does the defense want to handle the Rule 50 motion? Have you given any thought to that? My preference is that you just make it orally at the close of the plaintiffs' case but . . .

MR. PAGLIARO: We will certainly make it orally, Your Honor, but we probably will file something as well, but it will certainly be oral as well.

THE COURT: Okay. That's fine. Anything else we need to take up?

MR. PAGLIARO: May I ask a question, Your Honor?
THE COURT: Yes.
MR. PAGLIARO: You mentioned, Your Honor, at the pretrial that it might be possible to accommodate people that have to leave town by stopping a little early --
THE COURT: Yes.
MR. PAGLIARO: -- on a day?
THE COURT: Yes.
MR. PAGLIARO: May I impose and ask Your Honor --
THE COURT: Absolutely.
MR. PAGLIARO: -- if you'd be willing to stop a little early on Wednesday? Mr. Meador and I would like to catch a flight and --
THE COURT: Yes. What time would you like me to stop?
MR. PAGLIARO: Maybe just a half an hour, Your Honor, would be fine.
THE COURT: You want to stop at two o'clock?
MR. PAGLIARO: Could you do that, Your Honor?
THE COURT: Absolutely. I can stop earlier if you want.
MR. PAGLIARO: No, I think that's enough for us --
THE COURT: It's hard to get in and out of Sioux City. I know that. And so -- absolutely.
MR. PAGLIARO: It's a matter of going back to the hotel, dumping our stuff, getting changed, and then grabbing a

ride.

THE COURT: And will two o'clock give you enough time to do that?

MR. PAGLIARO: I think so, Your Honor. I tried to be conservative. I think that'll --

THE COURT: Okay. If you decide otherwise tomorrow, let me know, and we'll cut it back a little bit more.

MR. PAGLIARO: I think that's fine, Your Honor. I really appreciate it. I really do.

THE COURT: Okay. Absolutely.

And you may not finish then but . . .

MR. MCCLAIN: It will still be pretty close. I think we have -- we have two other long depositions that are about four and a half hours, so we can get most of that done tomorrow. And then we have Mr. Kuiper to complete. We have Dr. Farrell to call and then a few other short depositions. I think it will still be very close.

THE COURT: But aren't you calling the spouse and a couple of the kids or something?

MR. MCCLAIN: Yes. Conley will be less than an hour, and the kids will be, you know, 15 minutes or so.

THE COURT: Yeah. Okay. Well, if you finish on Wednesday, fine. If not -- how long -- are you sure you really want to play those four-hour depositions?

MR. MCCLAIN: No, not necessarily. We may -- we're

going to look at that.

THE COURT: Okay. That's fine.

How long do you think your case will be? And the reason why I ask is I've got a criminal case I'm supposed to start next Thursday, you know, and it may be that I -- it's a two-day case hopefully. It just may be that I can't start it on Thursday, and I understand that. I'm not going to cut you short because we decided -- I decided not to use the newly purchased chess clock, and I think we're running about what -- you know, in a similar time so . . .

MR. PAGLIARO: Our hope, Your Honor, is to do our case in four days. That's our hope.

THE COURT: Okay. So if we start Monday, you think you'll be finished on Thursday; we'll argue it on Friday.

MR. PAGLIARO: That's what I'm hoping, Your Honor.

THE COURT: Okay. At this point that's all you can do is give me your best guesstimate and best hope.

So based on that, I'm for sure going to reschedule my criminal case, and that's fine, not a problem. And we'll see you tomorrow morning. I'll check in with you about 8:00, see if there are any issues, and we'll get started at 8:30.

MR. PAGLIARO: Thank you, Your Honor, for the accommodation as well.

THE COURT: Oh, my pleasure.

(The foregoing trial was

adjourned at 2:32 p.m.)

CERTIFICATE

I certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

s/ Shelly Semmler — 3-26-09
Shelly Semmler, RMR, CRR — Date

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